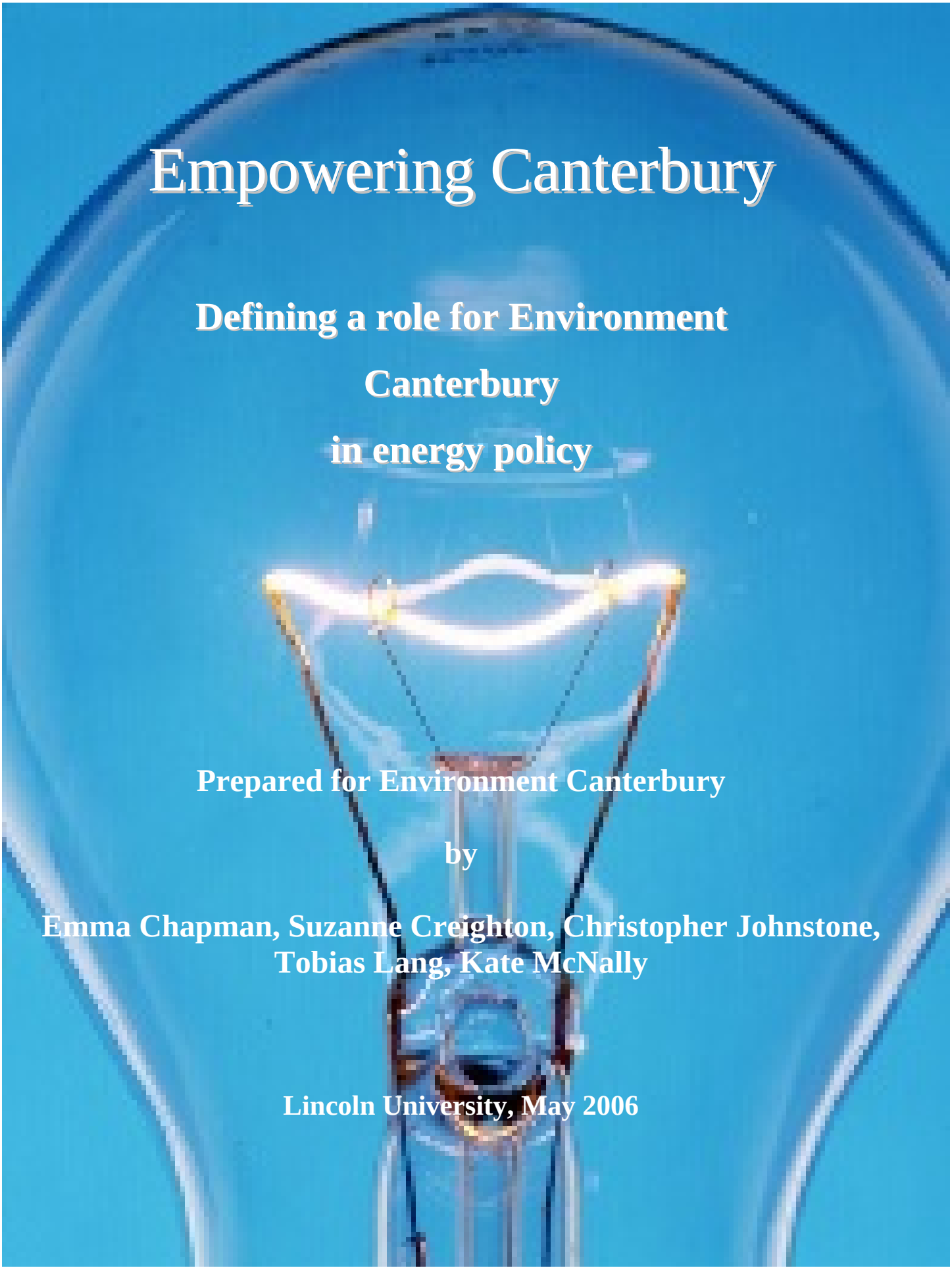

Empowering Canterbury

Defining a role for Environment Canterbury in energy policy

Prepared for Environment Canterbury

by

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Lincoln University, May 2006

Executive Summary

This report has been prepared for the ERST 635 Group Case Study, as part of the Master of Environmental Policy (MEP) degree at Lincoln University in 2006. This year's case study focuses on determining the optimal role for Environment Canterbury with regard to energy policy. This will be based primarily on the analysis of the current institutional arrangements for energy issues, and the opinions and expectations of a number of key stakeholders. It is intended that this will allow Environment Canterbury to align its energy policy, including the RES, with stakeholder views.

Energy has become an increasing concern globally and nationally due to security of supply, rising costs, and environmental impacts. ECan has a legal mandate to be involved in the region's resource management issues, including energy. However, central government does not make its expectations of regional councils explicit and there is little indication of what the community expects from ECan regarding energy issues.

The framework for analysis has been adapted from Integrated Environmental Management (IEM) literature and applied in the form of criteria to an analysis of the current national and regional institutional arrangements for energy management and stakeholder views. The main findings from the IEM analysis are:

- There are no overarching common goals provided by central government and a lack of guidance for regional councils. The dominant focus is on is on short-term supply issues at the expense of strategic demand planning.
- A comprehensive approach is not taken to energy issues both nationally and regionally. Energy-related issues such as transport and urban design are not considered in their energy context.
- There is a lack of ongoing coordination among central government agencies as well as between national and regional level government regarding energy issues.
- There seems to be a lack of recognition of the importance of energy issues in regional and local level plans.
- The resources committed to energy policy development and implementation at all tiers of government are currently not adequate

ECan should take a facilitative role with energy providers and key commercial and industrial energy users and a leadership role for the wider community and TLAs. Furthermore, stakeholders suggest that ECan should focus its efforts on demand-side management.

The general recommendations for ECan are:

- Contribute to development of national policies
- Align regional policies with national policies
- Refine the goals of the Regional Energy Strategy
- Increase resources for addressing energy issues
- Use the Regional Policy Statement to coordinate energy policy in Canterbury
- Ensure that settlement patterns minimise energy use
- Facilitate stakeholder interaction
- Public education to encourage energy efficiency
- Support research and development in energy solutions
- Encourage environmentally responsible distributed generation projects
- Encourage the development and use of bio-fuels
- Introduce incentives for energy efficient measures
- Continue with and expand on regional energy surveys

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All the stakeholder representatives who gave their time to provide insight into national and regional energy issues. Special mention should be made of John Peet, whose additional help and support was especially appreciated.

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List of Acronyms

CCC	Christchurch City Council
CCO	Climate Change Office
CDHB	Canterbury District Health Board
CEA	Community Energy Action
CECC	Canterbury Employers Chamber of Commerce
CMA	Canterbury Manufacturer's Association
DBH	Department of Building and Housing
ECan	Environment Canterbury
ECNZ	Electricity Corporation of New Zealand
EECA	Energy Efficiency and Conservation Authority
ESA	Electricity Supply Authority
GCUDS	Greater Christchurch Urban Development Strategy
GPS	Government Policy Statement
IEA	International Energy Agency
IEM	Integrated Environmental Management
LGA	Local Government Act
LGNZ	Local Government New Zealand
LTA	Land Transport Act
LTCCP	Long Term Council Community Plan
MARIA	Metering and Reconciliation Agreement
MED	Ministry of Economic Development
MfE	Ministry for the Environment
MoT	Ministry of Transport
NEECS	National Energy Efficiency and Conservation Strategy
NES	National Energy Strategy
NGO	Non-Governmental Organisation
NPS	National Policy Statement
NRRP	Natural Resources Regional Plan
NZEM	New Zealand Electricity Market
NZTS	New Zealand Transport Strategy
OECD	Organisation for Economic Co-operation and Development
PCE	Parliamentary Commissioner for the Environment
RES	Regional Energy Strategy
RLTS	Regional Land Transport Strategy
RMA	Resource Management Act
RPS	Regional Policy Statement
SDPA	Sustainable Development Programme of Action
SEF	Sustainable Energy Forum
SOC	Sustainable Otautahi-Christchurch
SOE	State Owned Enterprise
TLA	Territorial Local Authority

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1. Introduction

A four-month group case study is undertaken in the second academic year, as part of the requirements of the Master of Environmental Policy (MEP) degree at Lincoln University. It is focused towards meeting the needs of an external client whilst simultaneously maintaining standards of academic rigour. In 2006 the external client is the Canterbury Regional Council, commonly known and referred to hereafter as Environment Canterbury (ECan).

The purpose of this report is to investigate a potential future role for ECan in energy policy and management. This will be based primarily on the analysis of the current institutional arrangements for energy issues, and the opinions and expectations of a number of key stakeholders. It is intended that this report will enable ECan to better align the RES with stakeholder views. Appendix 1 contains the project brief. This report will not concentrate on the potential for renewable energy in Canterbury, as a study currently being undertaken by EECA investigating this.

ECan has a legal mandate to be involved in the region's resource management issues, including energy. However, in dealing with energy, central government does not make its expectations of regional councils explicit through legislation or policy. There is also little indication of what, if anything, the community expects from the organisation in the energy context. Other than through annual plan submissions, there has been until relatively recently, with the introduction of the Local Government Act 2002 (LGA), little direct dialogue with the community, to define the role that ECan is expected or required to take with regard to energy.

ECan first began to develop an energy strategy for the Canterbury region in the mid-1990s. Released in 2004 and currently still in draft form, the Regional Energy Strategy (RES) intends to provide a framework within which energy issues can be identified, prioritised and addressed in a manner consistent with legislation including the Resource Management Act 1991 (RMA), the LGA and the Canterbury Regional Policy Statement. The RES was intended to provide a basis for consultation to ascertain community expectations for ECan with regard to energy.

This report will initially provide a brief synopsis of current energy issues from an international and national perspective. Following this, the framework for analysis is presented and explained, incorporating elements from an Integrated Environmental Management (IEM) perspective. The rationale for the methods used will subsequently be explored. Energy management in New Zealand is then discussed from both a historical and contemporary point of view. The framework will be applied to the current policy and institutional context. Following this an analysis of stakeholder views will be produced utilising the IEM framework, elucidating stakeholder expectations of ECan. A summary of findings will then be put forward, detailing to what extent ECan is meeting stakeholder expectations with regard to energy. Conclusions and options for ECan's future energy management and reworking of the Regional Energy Strategy will be provided. Lastly a number of recommendations will be provided.

2. Energy as an Issue

Energy is a key component of the interactions between nature and society. It is an essential input for economic development and there is no source of energy that is absolutely neutral with respect to the environment (OECD, 1995: p13). A well functioning energy supply is of great importance for economic and social development throughout the world. Because many methods of energy production, transmission and consumption have adverse environmental consequences, it is considered important for many reasons (not only environmental) to limit the future growth of energy consumption or need for supply (Gradin & Parding, n.d: p9).

Currently much of the world's energy supply comes from fossil fuels. The extraction, transportation, and conversion of fossil fuels and generation and transmission of electricity have always had local and regional environmental impacts. There has been greater recognition of these negative effects in recent years, by both decision makers and the general public. As a result of this, and potential energy shortages, much greater attention is now focused on energy and its impacts.

2.1. Global issues

Worldwide demands for energy services are growing rapidly. The escalating demands are attributed mainly to energy-intensive economies, a growing world population, and further industrialisation.

Greenhouse gases (primarily carbon dioxide, methane and nitrous oxide) that exist in the atmosphere naturally allow warmth from the sun to build up in the Earth's atmosphere. However, international scientific consensus suggests that human demands for energy are contributing to an increased level of these gases in the atmosphere. In particular, significant amounts of carbon dioxide are being released from the burning of fossil fuels such as coal, oil and gas, as well as from deforestation. These emissions are enhancing the greenhouse effect at an unprecedented rate, an impact that is known as 'global warming'. This effect has the potential to significantly change the world's climate (PCE, 2003: p32). Climatic

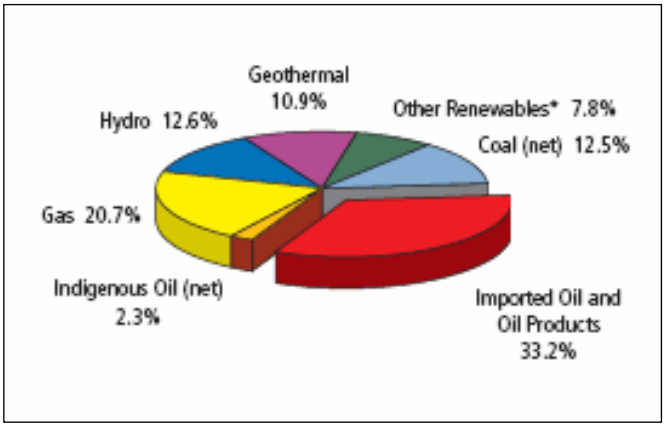
changes will potentially affect the world's ecosystems, industries, infrastructure, health, biosecurity and economy.

Energy security concerns are likely to lead to more conflicts over scarce resources, especially in the Middle East and Central Asia, and heightened worries about the reliability and cost of petroleum supplies. Energy costs will increase due to rising consumption and limits to production rates. In particular, oil and gas production limits will almost certainly be reached within the first half of this century, probably sooner rather than later. Oil and gas prices will rise significantly. Moreover, the question in the petroleum industry is not *if* worldwide oil and gas extraction will peak, but *when* it will peak. Estimates for when peak oil[1] will occur range between 2006 and 2040, with the greatest consensus around 2012 to 2020. After it peaks, oil production is expected to decline at a rate of around 3 percent per annum, which is likely to place further strain on nations (PCE, 2005: p25).

2.2. National issues

A large part of New Zealand's total primary energy supply comes from oil products, the majority of which is imported (see Figure 1). As shown in Figure 2, in excess of 60% of the country's electricity provided by hydro generation, with gas, coal and geothermal energy being the other main sources. Other sources, which include biogas, waste heat, wood and wind, made up a total of 3.8% of New Zealand's total electricity generation in 2004.

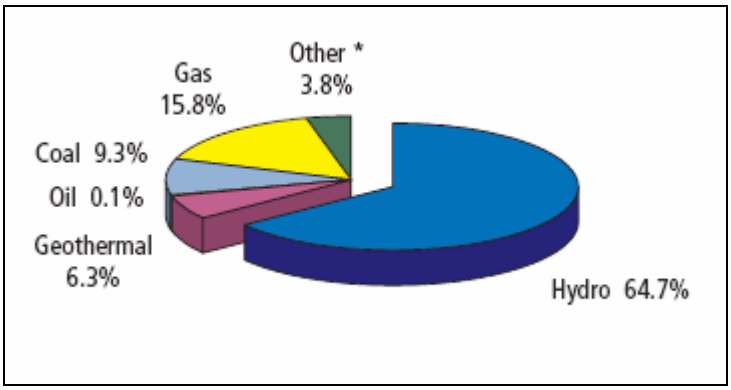
Figure 1: New Zealand's Total Primary Energy Supply by Source (2004)



Source: MED, 2006a: p6

[1] 'Peak oil' is the point in time when extraction of oil from the earth reaches its highest point and then begins to decline (ASPO - NZ, 2006). There is debate among oil industry experts over when peak oil will occur.

Figure 2: Electricity Generation by Source (2004)



Source: MED, 2006a: p26

Nearly all transport in New Zealand relies on fossil fuels, with the exceptions of electric trains and buses. Niche markets for renewable transport fuels are expected to develop over the coming years. The Energy Efficiency and Conservation Authority (EECA) suggest that E5, a petrol product with five per cent bioethanol, could soon be available, and biodiesel is very close to being commercially viable on a large scale.

Renewable energy sources offer numerous advantages when compared to traditional fossil fuel sources; there is less risk of depletion and many of them are cleaner (produce less carbon emissions) or better distributed geographically. However, they are still relatively underdeveloped, largely for technical reasons, but also due to their costs (OECD, 1995: p14). EECA also asserts that renewable energy resources have a major role to play in meeting the New Zealand's demand for energy (EECA, 2006a).

Current energy issues include the need for transmission line upgrades through the central North Island and also into Christchurch. The Maui gas field is reaching the end of its life, which has implications for security of energy supply. Investigation into alternative energy sources is currently underway, and future coal fired power stations remain an option. New Zealand's dependence on imported oil is a growing concern as petrol prices continue to rise. Rising petrol prices will result in the increased cost of goods and services.

3. Framework for Analysis: Integrated Environmental Management

Integrated environmental management (IEM) is an approach to environmental management that recognises current environmental problems are complex and interrelated. It attempts to address issues from a holistic and inter-disciplinary perspective. The IEM approach is a valuable tool in assessing the policy and institutional arrangements for addressing a particular resource or environmental management issue. Other similar holistic approaches to environmental decision making include ecosystem management, integrated resources management, integrated catchment management, and watershed management (Margerum, 1999: p151).

Consequently, an IEM framework has been selected in order to assess the current institutional arrangements for energy management in Canterbury. National level institutional arrangements will also be examined, but as specified in the brief, the main focus of the report will be on institutional and policy arrangements in Canterbury. The IEM framework will then be applied to the results of stakeholder interviews to identify the role and direction ECan should be taking in its energy policy decisions.

3.1. The Rationale for Using an IEM Framework

The analytical framework used in this analysis has been mainly adapted from literature on IEM by Cairns & Crawford (1991), Born and Sonzogni (1995), Margerum & Born (1995), Margerum (1999), and Margerum and Hooper (2001). The criteria used have been mostly adapted from recurring elements that authors have identified to be critical to successful IEM.

The reasons for choosing the IEM framework over other theoretical frameworks lie mostly in the nature of the original brief. The brief asked to determine the optimal role for ECan with regard to energy management. After initial research on the main management issues and the main stakeholders, it became clear that there is some degree of fragmentation and incoherence in the management approach and so

therefore there is a need to draw together the interconnected elements of this complex, environmental problem (Cairns & Crawford, 1991: p6). Overarching national and regional goals regarding energy management do exist, however they are not always explicit. In addition, they are by no means shared among all government and other stakeholders. Fragmentation also results from the fact that the legal authority of government bodies, especially at local government level, is not always clear or always fully utilised. Given that the situation described above results in part from the management approach and the institutional setting, the IEM approach lends itself to conducting the analysis. The IEM framework is management-focused and gives some guidance on the principles underlying successful resource management. In addition, the IEM framework is very practically orientated, which is one of its major strengths considering that this report is prepared for an external client. An IEM framework helps to reconcile different stakeholder perspectives on resource use in order to make the use of the resources sustainable (Cairns & Crawford, 1991: p11).

3.2. IEM in the Energy Context

The International Energy Agency (IEA), of which New Zealand is a member, is an autonomous energy agency established within the framework of the Organisation for Economic Cooperation and Development (OECD). The IEA has noted that there is a need for balance and integration in government responses to energy issues (IEA, 1989). This statement is based upon a number of observations regarding the way environmental and energy decisions are often made in practice. These are:

- there are often several or many decision-makers;
- a fragmented structure of responsibilities and authorities is found in many countries;
- government goals are carried out in the dynamics of the market place, mainly by private sector and individual consumers; and
- there are often numerous goals (such as energy, environment, economic development) sometimes conflicting, sometimes complementary, acting on decision-makers (IEA, 1989: pp 80-81).

These points are also applicable in the New Zealand context. The roles of the various central government, local government and private sector actors in the energy sector

are often unclear. Environmental considerations are usually secondary to economic growth and energy supply issues. An integrated environmental management approach attempts to address these kinds of issues and to increase policy coherence through a comprehensive, coordinated, yet inherently practical approach. The current use of energy in New Zealand is unsustainable. An IEM approach is needed to achieve sustainable management of energy resources.

3.3. Criteria for Evaluation

In order to evaluate energy issues in New Zealand and Canterbury from an IEM perspective, the following eight criteria have been selected:

- Focus on broad and common goals
- Comprehensiveness
- Strategic reduction
- Coordination
- Participation
- Adequate resources
- Implementation and monitoring
- Transparency and accountability

These criteria have been adapted from IEM literature, and are discussed in more detail below.

3.3.1. Focus on Broad and Common Goals

A focus on common goals is one of the key prerequisites of IEM (Margerum & Born, 1993; Born & Sonzogni, 1995). The variety of views among stakeholders and the complexity of many issues demand that goals be broad and shared to involve all stakeholders and gain their support (Margerum & Born, 1993). Margerum and Hooper (2001) assert that holding common goals means that policy and management objectives will be shared by stakeholders, ultimately leading to a more broadly accepted policy. In the energy context, goals could be security of supply, energy efficiency or sustainability, and so forth.

3.3.2. Comprehensiveness

Comprehensiveness is a feature that many authors highlight as being of major importance in integrated management (Margerum, 1993: p154). This criterion relates to the need for IEM to take a holistic view of the issue in its wider setting. It involves accommodating a wide variety of stakeholders' views, a comprehensive problem definition that includes all facets of the issue and their interconnections, and the specification of alternatives (Margerum & Born, 1993; Margerum, 1993; Born & Sonzogni, 1995). In the energy context, this would entail ensuring that transport, land use planning, building and urban design, electricity supply and demand aspects of energy are all addressed.

3.3.3. Strategic reduction

Following on from the preceding criterion, most authors recognise that while it is important to be comprehensive and consider all aspects of the issue at hand, equally important is reducing the task down to a manageable level (Margerum and Born, 1993). Being strategic and practical requires those practicing IEM to selectively focus in on key points (pressure points) which are seen as the most important and relevant, in order to make the best use of available resources (Bührs, 1995). Pressure points for energy could include transport, urban design, energy efficiency, among others.

3.3.4. Coordination

Coordination is of paramount importance in integrated management in order to avoid overlap and ensure consistency (Margerum & Hooper, 2001; Born & Sonzogni, 1995). It has to occur on the 'procedural' level (institutional coordination of information, efforts, decision- making and responsibilities) and the 'substantial' level (coordination of goals and contents among different policies and laws) (Bührs, 1995: 6). Tools in this respect are data sharing procedures, regular communication mechanisms, joint reviews of plans and joint committees.

3.3.5. Participation

Participation of and interaction between stakeholders including the general public is seen by most authors as being an essential component of any IEM approach. It entails broader public and stakeholder support in a management process and is a step towards the integration of diverse information (Margerum & Born, 1995). Bührs (1995) refers to participation in IEM when he emphasises the need to 'think politically'. This means identifying all groups who are or will be affected and allowing them to state their views and to contribute to the decision-making process.

3.3.6. Adequate Resources

Adequate resources, such as time, funding and staff, are essential for implementation and a continuing management process (Margerum, 1999: p155). An IEM approach can be quite resource intensive; this criterion focuses on whether sufficient resources have been allocated at the different levels in the management framework for energy.

3.3.7. Implementation and Monitoring

In order to maintain a state of integrated management, continual monitoring should be undertaken to gain knowledge of the system and identify options for improvement (Cairns, 1991: p8). Implementation and monitoring processes need to be integrated for effective environmental management. Implementation is not only action based on goals, but also the adjustment of goals based on action if it is clear from monitoring outcomes that there are options for improving policy outcomes. Implementation is difficult to plan for as it involves many variables. Perhaps for this reason it has been a neglected part of the policy cycle (Bührs: 1995).

3.3.8. Transparency and Accountability

Transparency entails making the decision-making process more accessible to stakeholders, including the public, and also means having greater accountability to these stakeholders. Transparency opens the activities of decision-makers up to greater scrutiny. Accountability relates to whether those in power must justify the reasons for their decisions to their stakeholders (O'Riordan and Sewell, 1981).

3.4. Limitations of IEM

While IEM approaches have, for the most part, been viewed as a useful and beneficial ways to approach policy-making, criticisms have been made. It can be difficult to achieve consensus and make progress given the plurality of groups with an interest in any policy topic, particularly one as broad and wide-ranging as energy. Bührs (1995) notes that, in seeking to be comprehensive and to incorporate the views and interests of all stakeholders', IEM can result in very broad or high level principles and objectives which have been 'watered down' in order to be acceptable to everyone.

IEM has also been criticised as being unrealistic or unfeasible in its pursuit of comprehensiveness. It has been said that human cognitive limits prevent us from ever being able to be totally comprehensive; it is impossible for us to know everything or have all information available to us (Bartlett, 1990). Bartlett (1990) also points out that comprehensive decision-making costs time and money. Policy and decision-makers are frequently acting under time and resource constraints which make truly comprehensive decision-making difficult.

IEM, with its interdisciplinary focus and emphasis on policy and institutional coordination, is said to contradict the organisation of modern governance structures. Governments tend to be divided into a number of independent and discrete departments and ministries. This has been evident in New Zealand in the last two decades, with Government departments becoming highly disaggregated and functioning as virtual 'silos' (SSC, 1999). This attitude is slowly beginning to change and there is evidence that more whole-of-government approaches to cross-cutting issues such as energy policy are being encouraged. Such approaches are compatible with IEM.

Given this recent trend and despite these criticisms, IEM remains a valid approach. It is a pragmatic approach that stresses the most important aspects for successful environmental management.

4. Methods

This section gives an overview on the methods used for data gathering, interviewing and analysis. It provides a description of the methods, the rationale behind each and a short discussion of the strengths and weaknesses of each method.

4.1. Literature Research

Literature research has been used to gather background material in order to gain a reasonably detailed understanding of the aspects involved in energy management in New Zealand. The insights into past and present developments have been used to shape some of the questions used in the interviews. There is a vast amount of material available on the matter, so the focus of the literature review has been on official sources.

4.2. Stakeholders Analysis

Stakeholders, as understood in this context, are "persons, groups or institutions with interests in a policy, programme or project" (Allen & Kilvington: 2001). Incorporating the views of stakeholders is key to ensuring the success of a policy document. The study brief for this report requires that key stakeholders be identified and interviewed on the role that ECan should take with regard to energy, with their views being used as the basis for recommendations to the council. Energy is a broad issue, and therefore interested parties span a number of sectors. These include people or groups with a specific interest in electricity (generation and supply), transport, or building efficiency, as well as those with an interest in all of the wider issues. Because there is such a huge number of potentially interested parties, a stakeholder analysis has been conducted to determine who are the key players with regard to energy in Canterbury. The stakeholder analysis provided the starting point to establish which groups to include in the subsequent interviews.

Two steps have been taken to determine whose views to incorporate in this report. In line with Allen & Kilvington's (2001) approach to stakeholder analysis, the major stakeholder groups with regard to energy were identified, and a list of all major

stakeholders within these groups was compiled. The timeframe of the study meant that it was necessary to strategically reduce the number of stakeholders to interview to a feasible number. This was done with some input from the client in the early stages of research, to determine whose views were most important to capture. The following table gives an overview of the stakeholders that have been identified as important for this study. The right column indicates which stakeholders have been interviewed.

Stakeholder Group	**Interviewed (✓)**
Central Government	
Energy Efficiency and Conservation Authority	✓
Ministry for Economic Development	✓
Ministry for the Environment	
Ministry of Transport	✓
Electricity Commission	
Local Government and Health	
Christchurch City Council	✓
Kaikoura District Council	
Canterbury District Health Board	
Non Governmental Organisations (NGOs) and Community Groups	
Sustainable Otautahi Christchurch	✓
Sustainable Energy Forum	✓
Community Energy Action	✓
Independent Advisors	
Molly Melhuish	✓
Ian McChesney	✓
Ian Bywater	✓
Energy Generators and Suppliers	
Transpower	✓
Meridian Energy	✓
Orion Group	✓
Network Waitaki	✓
Mainpower	✓
Solid Energy	✓
Industry Groups	
Canterbury Employers Chamber of Commerce	✓
BRANZ	✓
Canterbury Manufacturers' Association	✓
Federated Farmers	✓
CRL Energy Ltd	✓

Iwi	
Ngai Tahu Property Holdings Ltd	✓
Research Instititions	
University of Canterbury School of Engineering Centre for Advanced Engineering Lincoln University	

A broad cross-section of relevant stakeholders was identified and contacted for interviews. Most of these stakeholders sit at the regional level. However, some national government organisations were selected because of the obvious role they play in developing influential national energy policies. There is no one particular Canterbury residential energy group which is representative of the wider community, and due to time constraints it was not possible to complete a comprehensive survey of the general public's views on energy. Consequently, NGOs and community groups were consulted to obtain a community perspective. ECan will need to undertake wider public consultation on any further energy discussion documents.

Responses were not obtained from four of the 29 stakeholders identified here. Contact was made with five staff at Ministry for the Environment to no avail, the response being that nobody was able to do an interview. The relevant contact at the Electricity Commission was on leave, and no response was received from the Canterbury District Health Board, despite several attempts at contact. Kaikoura District Council was to respond by email, but this response was not received until after the cut-off date, despite repeated requests for the information. The three research institutions were not included in the interview process for this study. Their contributions in the seminars were taken into account, and further contributions from them would be valuable for future research.

4.3. Stakeholder Interviews

Altogether, a total of 22 interviews were conducted. Nineteen of these interviews were face-to-face, and three were carried out via email.

4.3.1. Interview Questions

The interview questions were determined both by the nature of the brief and in consultation with the client. The questions generally focused on regional level governance with regard to energy issues. To allow for comparisons among stakeholders, and to summarise the results in a meaningful way, all regional stakeholders were asked the same questions. National-level stakeholders were asked slightly different questions to integrate a distinct national focus. For the original interview questions, please refer to Appendix 2.

4.3.2. Semi- Structured Face-to-Face Interviews

There were multiple rationales behind doing personal interviews. Generally, face-to-face interviews allow for a more natural mode of interaction. Being able to speak as if carrying out an everyday conversation allows for more relaxed conversation, small talk, and non-verbal communication. Also, the character of an everyday conversation has the potential to avoid the typical interviewer-interviewee asymmetry, that is, the subordinate relationship resulting from the artificial setting of an interviewer and his/her respondent. This more natural approach has been found to lead to more open expression and comfort, and altogether, to more self-generated and accurate responses (Shuy, 2002: p541).

However, there are other benefits in face-to-face interviews. Both the degree of commitment that is required to travel for the sole purpose of conducting interviews and the interviewer's personal presence in a face-to-face interview should not be underestimated as factors in being taken seriously as interviewer and obtaining a more committed response (or a response at all). Face-to-face interviews have shown to be more effective (than phone interviews, for example) with complex issues, and the questions asked in this study certainly fell into that category (Shuy, 2002: p542).

There are however, some issues associated with personal interviews in general and in this case in particular. The general problem of personal interviews lies in the possible bias of both the interviewer and the interviewee. The latter may have been an issue particularly in this study, as individuals were not expressly interviewed in their

function as representatives of their organisation, but rather as professional individuals. Thus, their views may not necessarily reflect their organisation's view.

Due to the benefits mentioned above, face-to-face interviews were seen as the most desirable approach. In addition, face-to-face interviews greatly facilitate recording. They were used with as many stakeholders as possible.

The procedure for face-to-face interviews was to make appointments and meet at the organisation's offices. Prior to the interview, each interviewee was emailed a list of the questions that would be asked. Interviews were scheduled to be approximately one hour in duration, with most of the interviews being concluded within this timeframe. The interviewee would go through a maximum of twelve prescribed questions (subject to applicability), with the option for the interviewers to ask further questions either during or after the interview. The interviews were digitally recorded for future reference with the consent of the interviewees. Comments that were made in confidence were highlighted as such by the interviewees.

The problem with remote one-off interviews can be that a personal follow-up is difficult when resources and time are limited. This issue was addressed by specifically asking interviewees whether they could be contacted by telephone should further questions arise, a request no interviewee declined. The fact that interviews were conducted face-to-face is an advantage as there is a known and willing contact person in case further questions arise.

All interview recordings were transcribed as closely to the wording as possible. The transcripts were then summarised, and each interviewees' answers collated into one document according to the question.

4.3.3. Email interviews

Low cost is one of the most convincing advantages of conducting interviews by electronic mail (email) (Mann and Stewart, 2002: p607). In addition, the asynchronous nature of email interviews makes it a flexible approach regarding the needs of respondent, giving them time to formulate their reply. A definite advantage

for the interviewer is that he/she can obtain digital data that can be moved around different computer functions.

A potential disadvantage of email interviews is that the requirement to type responses creates more work for the interviewee, meaning that responses can be truncated. Email interviews are problematic as they may be perceived too impersonal to generate an encompassing response. In addition, if standard forms are not used the researcher has no control over the form and format of the responses (Mann and Stewart, 2002: p610). Security issues are an important factor with email interviewing. Author authentication and authorisation, confidentiality questions, internet security threats and integrity questions (i.e. whether information has been manipulated) are certainly issues to bear in mind with regard to email interviewing (Mann and Stewart, 2002: p609).

Email interviews were seen as a less desirable approach than in-person interviews. They were thus applied in cases where face-to-face interviews were deemed impractical or impossible due to budget and time constraints, or if interviewees were not available to meet in person. The procedure was to send the interviewee an attached list of questions, asking him/her to respond. All but one stakeholder replied, and the questionnaires were usually sent back after follow-up requests.

5. National Institutional Arrangements for Energy

This section deals with the current institutional arrangements for energy policy. The history of the energy sector and past policy initiatives are detailed in Appendix 4. In particular, the history of the electricity sector, transport and building initiatives has been outlined. There is currently no National Policy Statement for energy (MED, 2004a) so there is no single guiding policy document at central government level. A number of various ministries and agencies have responsibilities for different aspects of energy. There is, however, legislation and a number of central government policy documents which comprise national energy policy.

The Government has stated that its overall objective with regard to energy policy is to ensure the delivery of energy services to all classes of consumer in an efficient, fair, reliable, and sustainable manner (MED, 2005d). The overall outcomes the Government is aiming to achieve are:

- environmental sustainability, including continuing improvement in New Zealand's energy efficiency and a progressive transition to renewable sources of energy
- costs and prices to consumers which are as low as possible, while ensuring that prices reflect the full costs of supply including environmental costs
- reliable and secure supply of essential energy services
- fairness in pricing, so that the least advantaged in the community have access to energy services at reasonable prices
- continued public ownership of publicly owned assets. (MED, 2005d)

The institutional arrangements for energy in New Zealand are discussed by sector below.

5.1. The Electricity Sector

Responsibility for overall management of the electricity, gas, petroleum and coal industries in New Zealand falls to the Ministry for Economic Development. The Energy portfolio, which has not had its own ministry since the major economic and

government restructuring of the 1980s, is now part of the MED. The Energy portfolio is responsible for:

- policy and regulatory frameworks for the electricity, gas, and petroleum markets and the industry/government co-regulatory model for gas
- enforcement and service delivery for the Crown mineral estate (including oil and gas) and the safety of energy services. The Investment Unit of the Crown Minerals Group facilitates exploration and mining investment in the New Zealand mineral estate (MED, 2005a; MED, n.d: 7).

The Energy portfolio is expected to lead the country's progression towards a sustainable energy future. Its key goals are to:

- maintain a reliable and resilient supply of energy at fair and affordable prices
- limit the impact of the sector on the environment, both local and global.

The Electricity Commission is part of the Energy portfolio and was established in 2003, under the Electricity Act 1992. Its functions are detailed in the Government Policy Statement on Electricity Governance, issued by the Minister of Energy. The role of the Electricity Commission is to manage and oversee New Zealand's electricity industry and markets. This involves the formulation and administration of rules governing the wholesale electricity market, the retail market and the transmission of energy.

One of the Commission's main tasks is to ensure New Zealand has a secure and reliable electricity supply. It also encourages investment in the generation of electricity and ensures that competition in the generation and retail markets is promoted. The Commission enacts rules to ensure that domestic consumers have access to electricity supply and are treated fairly in their dealings with electricity retailers (Electricity Commission, 2005).

The Ministry for the Environment also plays a part in energy policy through the administration of the Resource Management Act 1991 (RMA). This legislation provides the framework for resource management practice in New Zealand. The purpose of the Act is to promote the sustainable management of natural and physical resources as outlined in section 5 of the RMA. The RMA focuses on managing the

effects of activities rather than regulating the activities themselves. This reflects the market-based approach of the Labour Government at the time the Act was passed. Although this promotes innovation, it can also lead to reactive environmental planning (Environmental Defence Society, 2006).

Decision makers under the Act, including ECan, have to comply with the sustainable development purpose of the Act by managing energy to meet the needs of present and future generations, managing the impact of energy on air, water, soil and ecosystems and also avoiding, remedying or mitigating adverse effects of energy on the environment (ECan, 2004: p2). The Resource Management (Energy and Climate Change) Amendment Act 2004

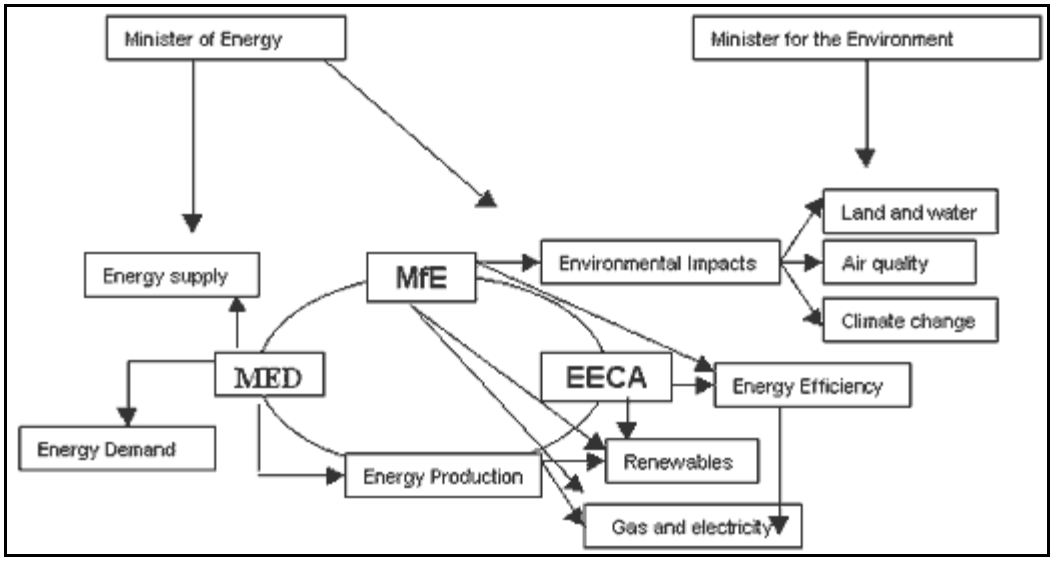
- removed regional councils' ability to directly control greenhouse gas emissions through resource consents and regional plans as industrial emissions were to be dealt with via a national instrument
- included energy issues in the list of Other Matters in section 7 which decision makers are to have particular regard to (including the efficiency of the end use of energy, the effects of climate change and the benefits to be derived from the use and development of renewable energy).

The Resource Management (Climate Protection) Amendment Bill 2006, proposed by Jeannette Fitzsimons, and currently before the House, seeks to repeal those sections of the Resource Management (Energy and Climate Change) Amendment Act which prevent the consideration of climate change in the granting of air discharge consents and the formulation of regional plans. This is intended to cover the period until a national instrument is developed. The thinking behind the Bill is that local government can, through its influence on transport and land use planning, and its transport policy have a major impact on greenhouse gas emissions from motor vehicles (Green Party, 2006).

There is currently a lack of clarity between the functions of the MED and the MfE in relation to the development of energy policy. Figure 3 illustrates the complexity and overlapping nature of the institutional arrangements. The MfE developed an environmental indicator for monitoring energy, but since then its energy focus has narrowed to climate change policy and some limited monitoring of regional councils

(I. McAuley, 2006: pers. comm., 29 March). However, as the Government has announced it will be commencing the development of a National Energy Strategy this year, there may yet be some clarification over roles and responsibilities at a national level. The terms of reference for this strategy are expected in June 2006.

Figure 3: Energy responsibilities in central government



Source: MfE, 2006

5.2. The Gas Sector

The MED is the lead agency on policy development for the gas industry. A major issue facing the MED at this time is the decline of the Maui gas field and the associated supply issues this raises. The Gas Industry Company Ltd is a 'co-regulatory' body which works with both the government and the gas industry to achieve the objectives and outcomes set down in the Government Policy Statement on Gas Governance (Gas Industry Company Ltd, 2006).

5.3. Energy Efficiency

The Ministry for the Environment and the Energy Efficiency and Conservation Authority (EECA) are the two main government agencies who work together on energy efficiency issues. EECA is a Crown entity whose main role is to promote and further the Government's energy efficiency objectives. It promotes the use of energy efficient technologies and renewable energy sources by raising public awareness of

these issues and working with businesses and local government to encourage energy efficiency. EECA and the MfE also provide policy advice to the Minister for Energy on matters of energy efficiency, conservation and renewable energy (EECA, 2005).

EECA is a key implementation agent of the National Energy Efficiency and Conservation Strategy (NEECS) (EECA, 2001: p4; 2006b). Both the MfE and EECA have responsibilities under the NEECS to develop policies which facilitate the generation of energy from renewable sources and encourage energy efficiency and conservation. The Strategy's purpose is to promote energy efficiency, energy conservation and renewable energy and to move New Zealand towards a sustainable energy future. The NEECS sets two specific targets:

- A 20 per cent improvement in energy efficiency by 2012
- Increasing our supply of renewable energy by a further 25-55PJ of consumer energy (22 per cent) by 2012 (EECA, 2006c)

The NEECS addresses energy demand as well as supply. Its emphasis is on energy services for the end user: heat, light and transport, rather than energy sources (MED, 2004A). During the preparation of this report, it was announced that the current NEECS will be replaced.

EECA organises the EnergyWise Councils Partnership to assist councils in improving energy efficiency, conservation and improving renewable energy supply. The partnership aims to have "energy efficiency and conservation acknowledged as a core responsibility of local government" (EECA, 2006d). Currently ECan, Christchurch City Council and Kaikoura District Council are the only three Canterbury members.

5.4. The Transport Sector

The Ministry of Transport is the government's principal advisor for transport policy, and leads and generates national policy. The New Zealand Transport Strategy provides the framework within which transport policy is produced. Wider issues such as climate change and vehicle emissions tend to be dealt with at a national level, while regional initiatives tend to focus on land transport funding and implementation of national plans.

In 2002 the Ministry of Transport released the New Zealand Transport Strategy (NZTS). The government's vision for transport contained in the NZTS is that by 2010 New Zealand will have an affordable, integrated, safe, responsive, and sustainable transport system. This document addresses economic development, safety and personal security, access and mobility, public health and environmental sustainability issues within the transport sector (MoT, 2002: p1). The Strategy recognises that domestic transport accounts for 40% of New Zealand's total energy use, but currently offers limited means for improving energy efficiency in transport. A new funding system for public passenger transport has been introduced, which has led to a substantial increase in passenger transport use, and funding for pedestrians and cyclists facilities was increased (MoT, 2002: pp 43-47).

The Ministry is involved in a number of other sustainable transport initiatives. These include

- promotion of bio-fuels and development of a mandatory bio-fuels sales target (MoT, 2006b)
- leading the Fuel Consumption Information project to encourage consumers to purchase fuel-efficient vehicles and reduce vehicle emissions (MoT, 2006c)
- a joint initiative with the Ministry for the Environment (MfE) and EECA on a government vehicle fleet project to reduce the environmental footprint of government vehicle use
- decoupling of transport and economic growth and improving the pricing structure
- establishing a cross-sectoral policy framework that addresses transport's full costs, including externalities (MoT, 2005b: pp 12-14).

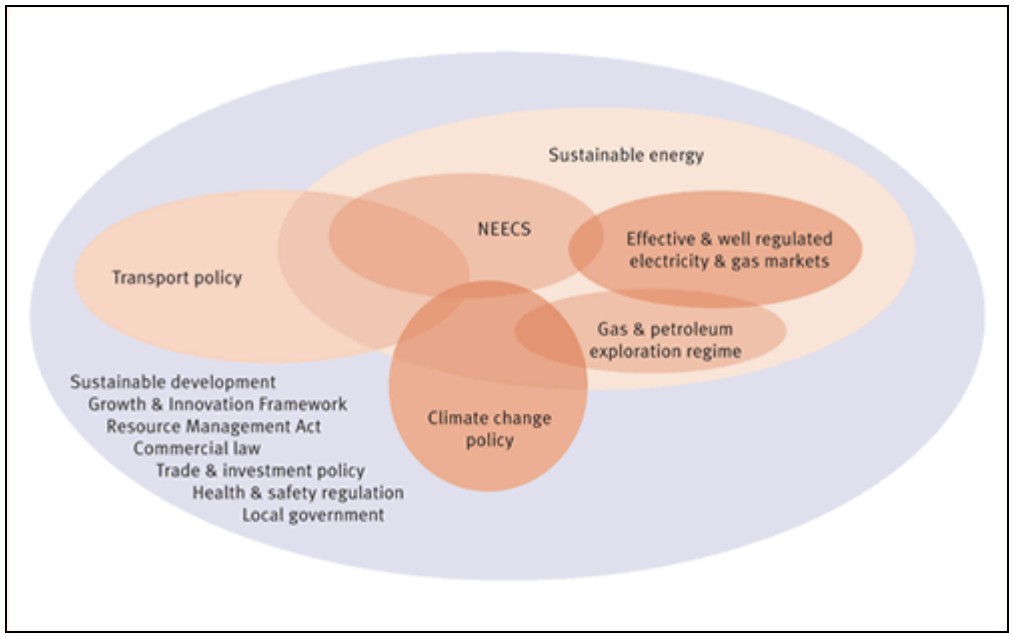
Currently more than 90% of transport funding is spent on roading, leaving less than 10% for managing long-term risks such as a response to peak oil (I. McAuley, 2006: pers. comm., 29 March).

5.5. Climate Change and Sustainability

While the higher goal of most government departments dealing with environmental issues is sustainability, a number of offices and policies exist that deal directly with sustainability. These are usually higher-level policies, and can feed into policies that deal with specific aspects of energy generation or use.

Figure 4 below indicates that the Government recognises there are interconnections between key national energy policy areas. The different aspects of energy policy are shown as being connected to sustainable energy to varying degrees. However, the inclusion of the gas and petroleum industries under the umbrella of sustainable energy is questionable, given that they are non-renewable resources.

Figure 4: Relationships of key policies with sustainable energy



Source: MED, 2006b.

The New Zealand Climate Change Office (CCO) is a business unit within the MfE responsible for leading the development, coordination and implementation of whole-of-government climate change policy (Climate Change Office, 2006). While the CCO leads climate change policies, other government departments are responsible for specific areas of the programme.

The CCO developed a set of policies in 2002 to meet New Zealand's obligations under the Kyoto Protocol. Several of these initiatives involve research into the effects of greenhouse gases, often with a focus on agricultural and forestry activities for much of the research. Many of policies developed were aimed at the business sector, and involved taxes on emissions and levies and support for projects that may reduce emissions. The policies of the CCO are particularly pertinent to transport and home heating matters (ibid). In 2005 the government set up a Climate Change Policy review team to re-evaluate climate change policies and objectives. As a result of this, taxes on CO_2 emissions were abandoned (ibid).

The Sustainable Development Programme of Action (SDPA) was developed in 2003 to ensure that the principles of sustainable development underpin all government activity. The energy section of the SDPA was developed by a whole-of-government working group led by the MED and involving the MfE (including the Climate Change Office), EECA, the MoT, Treasury, the Department of Prime Minister and Cabinet and Local Government New Zealand (MED, 2003: p18).

The Energy Programme of Action seeks to achieve the following outcomes:

- energy use in New Zealand becomes progressively more efficient and less wasteful
- our renewable sources of energy are developed and maximised
- New Zealand consumers have a secure supply of electricity (MED, 2003: 16).

The Parliamentary Commissioner for the Environment (PCE) focuses on environmental sustainability, and acts as an independent advisor to Parliament on resource management issues. The PCE also has a role responding to citizens' concerns on the environment, which involves researching the issue raised, engaging stakeholders and often making recommendations. The PCE is responsible for holding the government accountable for its environmental policies and actions. *Future Currents* is a report on energy released by the PCE in 2005 to discuss future scenarios for the electricity sector in New Zealand. This report promotes addressing demand management in addition to supply side management of energy sources, the latter of which has been the focus for the energy sector. Demand management takes a longer

term outlook and involves using incentives to promote a behaviour change towards energy efficiency. This includes smarter use of energy, for example, smarter appliances, smoothing peak demand, promoting public transport and applying an energy services model to address end uses such as heat and transport rather than thinking in terms of energy sources in isolation. On the supply side, it looks to greater use of renewable energy, distributed generation, and reducing greenhouse gas emissions (I. McAuley, 2006: pers. comm., 29 March; PCE, 2005).

The PCE works informally with regional councils on a project by project basis. The PCE's office was invited to make presentations at seminars hosted by ECan in 2005, and is currently involved in a transport project with major regional councils in the main centres to identify issues in each area. The PCE is also charged with conducting an annual assessment on the environmental performance of the Electricity Commission (I. McAuley, 2006: pers. comm., 29 March).

6. Regional Institutional Arrangements for Energy

Central government does not specify a clear statutory role for regional councils with respect to energy. However, regional councils do have responsibilities under the Resource Management Act, Local Government Act, NZTS and NEECS in relation to energy. The main documents released under these national legislation and policies are outlined here.

6.1. Regional Policy Statement

Environment Canterbury's Regional Policy Statement is mandated under section 30(1) of the RMA. The RPS identifies two key energy issues for Canterbury. These are

- Dependence on non-sustainable energy sources especially fossil fuels
- Adverse effects of production and use of energy (ECan, 1998).

Energy Policy 1 requires ECan to promote the use of energy from renewable sources consistent with sustainable management of natural and physical resources. The methods for implementing this policy include advocating an National Policy Statement (NPS) or National Energy Strategy (NES) on energy, information provision, improving public transport and cycle infrastructure, and encouraging more energy efficient land use activities.

Under Energy Policy 2, ECan must promote energy conservation and efficient energy use and the methods envisaged to do this include transport planning. The RPS also recommends that a regional energy strategy be developed to help to address regional energy issues (ECan, 2004b: pp 2-3).

6.2. Regional Energy Strategy

Environment Canterbury does not have the legislative mandate to produce a statutory document for energy issues. Instead, the Regional Energy Strategy (RES) was drafted in April 2004, and seeks to raise awareness of long-term energy issues. Environment Canterbury believes there is little public interest in energy matters. Using broad

stakeholder consultation, ECan plans to develop an energy strategy for the region, rather than a regional council energy strategy (ECan, 2004c: p1).

The RES states that it should link with local and national legislation and plans, but that 'despite the high level direction set by legislation and the overall objectives of the NEECS, there is a lack of specific guidance or mandatory targets from central government' (ECan, 2004c: p2). Without a National Policy Statement for energy, ECan feels there is a risk that projects may be misdirected or not achieve their full potential - there may be duplication of work or delivery gaps. The RES advocates an overall national vision that would co-ordinate efforts across the energy sector and result in greater efficiency (ECan, 2004c: p14).

Issues facing Canterbury from unsustainable increases in local and national demand for energy are identified in the RES as:

Security of energy supply

There is an increasing dependence on non-renewable fossil fuel energy, poor management of the electricity sector in recent years which has put supply at risk, and limited development or promotion of sustainable electricity supplies and renewable energy sources (ECan, 2004c: pp 7-9)

Increasing dependence on energy

Economic development and energy consumption are linked and increasing. Steady urban growth is resulting in increased energy consumption. Energy efficiency and conservation are not common practice in homes or businesses (ECan, 2004c: pp 10-12).

Guidance

There is a lack of specific, coordinated guidance for regional authorities and potential generators from central government via a national energy strategy. There is also a need to consult with the community goals for energy (ECan, 2004c: p16).

Environmental impact

Large scale additional generation projects and transmission infrastructure upgrades are likely to impact on the local environment and is steadily increasing fossil fuel use. (ECan, 2004c: pp 17-19).

The RES goals for energy linked to these issues relate to improving security of supply, improved central government guidance, reduced dependence on energy, and reduced impact on the environment (ECan, 2004c: p24).

6.3. ECan's Long Term Council Community Plan

The Local Government Act 2002 requires regional councils and TLAs to produce Long Term Council Community Plans (LTCCPs). These provide a long term focus for their decisions and activities, and provide an opportunity for the public to participate in the decision-making processes, which determine the council activities for the next ten years.

ECan has identified their energy role in their draft LTCCP as largely being a partner and advocate for energy efficiency, with energy-related agencies. ECan's rationale for this role is that they are responsible for promoting energy efficiency and the benefits of the use and development of renewable energy under the RMA and reducing the impact of energy use on the environment. Environment Canterbury is responsible for sustainable energy for future generations (for example, Energy Efficiency and Conservation Act 2000 and the Building Act 2004) (ECan, 2006: p36).

The key energy issues as outlined in ECan's LTCCP are pressure on energy supplies, and energy efficiency. Consequently, the two main focuses of their energy-related activity are implementing the Regional Energy Strategy, and undertaking energy efficiency demonstration projects, where a significant increase is planned and completing. The issue of energy is covered within three pages of the 121 page document.

6.4. Regional Land Transport Strategy

The Land Transport Act 1998 requires all regional and unitary authorities to develop land transport strategies for their area. In conjunction with Land Transport New Zealand, regional authorities are also responsible for public transport and Total Mobility schemes (MoT, 2005a). Local authorities have significant power under the RMA to manage the effects of transport on the environment (MoT, 2005a), and, as stated above, they are also in the best position to take charge with transport policy, as it is largely a localised issue. Environment Canterbury's first Regional Land Transport Strategy was produced in 1993, and has been frequently updated since then (I. McChesney, 2006: pers. comm., 28 April).

In March 2005 Environment Canterbury released the Canterbury Regional Land Transport Strategy (RLTS) 2005-2015. This is a medium-to-long term, strategic document that will guide the council in transport policies over the specified period. The strategy identifies 'future energy issues' as one of nine major issues for transport in the Canterbury region, citing New Zealand's reliance on oil as a matter of uncertainty for future transport developments. Therefore, the strategy argues that the transport system (in both Christchurch and wider Canterbury) needs to 'provide options for non-oil powered means of transport and be responsive to energy market changes' (RLTC, 2005: p11). The strategy also aims to increase the use of alternative transport modes – predominantly cycling and walking, but also the use of public transport, including buses and taxis (RLTC, 2005: pp 20-24). The RLTS is aligned with the objectives of the RPS.

6.5. Clean Heat Project

The Clean Heat project was mainly initiated with the intention of reducing air pollution within Christchurch City. However, one of the objectives stated in the Clean Heat Policy, is to encourage households to adopt energy efficient heating systems (ECan, 2004a: p3). The project provides financial assistance for households installing clean forms of heating, such as flued gas, nightstore heaters and solid fuel burners that meet the project's particulate emission standards. Additional energy efficiency measures, such as improved insulation, may be installed if the household qualifies. A

home energy rating scheme is underway, in which a home is graded on a 1-5 scale of overall energy efficiency, and efficiency improvements are suggested (ECan, 2004a: pp 6-7).

6.6. Greater Christchurch Urban Development Strategy

The Greater Christchurch Urban Development Study (GCUDS) is a collaborative, non-statutory initiative involving the Christchurch City Council (including the former Banks Peninsula District Council) Selwyn and Waimakariri District Councils, Environment Canterbury, Transit New Zealand and leaders of community, business and government organisations.

The strategy considers four main issues, of which two (transport and land use) are important issues for the energy sector. It discusses how the city will accommodate future population growth, and the transport initiatives that will need to be implemented in order to reduce congestion. This document has the potential to influence district and regional plans, and its outcomes will certainly have implications for regional transport policy (GCUDS, 2006). It is necessary because there is "neither an agreed longer term, integrated nor comprehensive views amongst the Councils, their respective communities, and Transit NZ", on the future growth and development of metropolitan Christchurch (GCUDS, 2004: p2).

7. Local Institutional Arrangements for Energy

This section considers the nature of energy policy contained in all the district plans and LTCCPs of TLAs in the Canterbury region[2]. Under section 31(1)(a) of the RMA, district councils are given responsibility for 'integrated management of the effects of the use development, or protection of land'. The District Plans and LTCCPs for all the TLAs in Canterbury have been examined for their energy content. These are the primary planning documents for District Councils. There is very limited coverage of energy issues in the District Plans and LTCCPs for District Councils in the Canterbury region, despite the existence of ECan's Regional Energy Strategy.

7.1. District Plans

Several of the District Plans of the Canterbury region, such as the Ashburton District Plan and Waimate District Plan discuss the district council's ability to influence energy efficiency and reduced use of fossil fuels through land use planning, for example, reducing number and length of vehicle trips, improving public transport infrastructure and building design (Ashburton District Council, 2001; Waimate District Council, 2001). The District Councils generally comment that they have a limited mandate and resources for energy issues.

The Ashburton District Plan identifies a role for its district council in public education on energy conservation, although it considers that it has limited influence over the total consumption of energy resources within the district as this is directed by national policy. The Plan does not mention support from or responsibilities to ECan.

The Timaru District Plan provides relatively detailed energy provisions of the Canterbury District Plans, detailing an overall objective, policies, methods, anticipated environmental outcomes and monitoring provisions for energy (Timaru District Council, 2005).

[2] The District Councils within the Canterbury Region are: Kaikoura District Council, Hurunui District Council, Waimakariri District Council, Selwyn District Council, Christchurch City Council, Ashburton District Council, Timaru District Council, Mackenzie District Council, and Waimate District Council (LGNZ, 2006).

The Christchurch City Plan features a whole chapter on energy. The Plan explicitly acknowledges the link between land use, transport and energy consumption, repeatedly emphasising that increased land use density decreases the need for transport and reduces energy use. The Plan's energy objectives are energy conservation, the promotion of public awareness of the need for energy efficiency and the promotion of renewable energy sources. Methods such as urban consolidation, improved building design and the encouragement of energy-efficient transportation (public transport, cycling and walking) are included in the Plan. The Plan also suggests a monitoring system to evaluate outcomes (CCC, 1995).

7.2. Long Term Council Community Plans

The LTCCPs for most district councils generally lack energy provisions. However, the Christchurch City LTCCP features a whole section on energy. It acknowledges that energy consumption is one of the many challenges for the protection and enhancement of the environment. It also acknowledges climate change as one of the key environmental challenges and spells out the need to reduce the country and region's reliance on fossil fuels and shift to renewable energy sources such as wind and solar energy.

Energy features in three of the 'strategic directions' (focus areas) of the LTCCP: 'a Healthy Environment', 'a Liveable City' and 'Economic Prosperity'. The section on a healthy environment sets goals such as to contribute actively to improve air quality and energy efficiency. The methods used to this end are: identifying and agreeing the CCC's roles; planning land use and transport in a way that minimises pollution (not energy use); encouraging energy efficiency; and encouraging the use of sustainable energy sources. The section on a liveable city, acknowledges that a good urban design reduce energy costs. The objective of this section is to manage land use to support and encourage a sustainable transport system, which helps to address climate change and energy consumption. The LTCCP's objective with regard to economic prosperity is to encourage energy efficiency and supporting the availability of a secure and reliable supply of energy. The CCC intends to work together with regional and national level agencies and ministries to understand and achieve this objective. The LTCCP also suggests monitoring indicators to measure progress in terms of the above objectives.

The indicator introduced through the LTCCP is the measure of renewable versus non-renewable energy consumption (CCC, 2006).

8. Analysis of Current Institutional Arrangements for Energy

This section applies the IEM criteria developed in section 3.3 to current institutional arrangements for energy in New Zealand. This will demonstrate the extent to which current arrangements reflect integrated environmental management.

8.1. Focus on broad and common goals

The stated goal of national energy policies, and in fact most environmental policies, is sustainability. For example, the NEECS aims to promote energy efficiency, energy conservation and renewable energy – working towards a sustainable energy supply. The NEECS provides a relatively holistic view of energy management. Another national initiative, the SDPA, states in its energy section that higher-level goals are security of supply, efficient use of energy resources and development of renewable energy.

While these policy goals are broad and common, the actions taken by various government departments seems to have little regard for these broader goals. Each department has its own agenda – economic growth for the MED, energy efficiency for EECA, sustainable development for MfE, and wider transport and housing issues for MoT and the Department of Building and Housing (DBH) respectively. The Minister for Energy sits within the MED, a department focused on economic growth. This suggests that an economic growth focus has been cast upon energy management. Because energy management in New Zealand is so fragmented, the different departments often fail to see the bigger picture and understand the wider and long-term implications of their actions on energy management. There seems to be a lack of common goals with regard to energy at the national level.

At a regional level, the two main energy policy documents in Canterbury (the RES and RPS) do appear to have common goals, which are also aligned with national level policy documents – energy efficiency, promotion of renewable energy sources, security of energy supply and mitigating adverse effects of energy production. As

with national policy, however, the problem lies in the fact that ECan has a number of policy agenda which often do not take into account the broader energy implications of any decisions made. For example, while decisions made with regard to air quality or transport have a direct influence on energy management, they may not fully take into account their implications for energy. ECan has prohibited open fires and high-emission woodburners to be installed in new homes, which increases demand for electricity.

In both national and regional government, there is a lack of overall strategic direction. The goals stated in policy documents do appear to be common and relatively broad, but often these goals do not direct the action that is taken, particularly by departments that deal with issues other than energy.

8.2. Comprehensiveness

A comprehensive approach requires decision-makers to take a wide and holistic view of all aspects of an issue and its interconnections. It is debatable whether this is always the case with energy management in New Zealand.

Prior to the Government electricity reforms of the 1980s the Ministry of Energy was responsible for the coordination of national energy planning and policy. This situation allowed for the development of comprehensive and strategic energy policy, with one Ministry was responsible for all aspects of energy management. This approach was also apparent in the Ministry of Transport which was responsible for all modes and aspects of transport.

The reforms, however, ushered in an era of fragmentation in energy policy, where responsibilities for generation, transmission and retailing were split and many parts privatised. This was also seen in the transport sector where the responsibility for rail transport was separated from road transport and sold to private interests.

The result of this deregulation has been fragmentation of energy policy and management, with no single agency having an overall view of energy issues. This has discouraged comprehensiveness in energy policy. The MED is charged with the

overall management of the electricity sector but is primarily focused on security in the supply of electricity and promoting economic growth. The MfE has an interest in the environmental effects of energy production and use but no real role in the implementation of energy policy.

MfE works with EECA in promoting energy efficiency, but these two agencies are effectively attempting to address efficiency and environmental issues in isolation. This separation from the MED, where the majority of supply side decisions are made, shows a lack of comprehensiveness in national energy policy. It appears that only supply side issues are addressed using regulatory measures; the management or reduction of demand for energy is left to non-regulatory strategies.

It has been said that the energy sector and energy policy at a national and regional level tend to be governed by election cycles and are reactive to crises such as electricity supply shortages (I. McAuley, 2006: pers. comm., 29 March). These crises are quickly forgotten once they are over and there is a lack of long-term thinking in national energy policy (G. Smith, 2006: pers. comm., 27 April). There is also a perception that 'sustainability' in energy policy relates more to sustaining business as usual for as long as possible, rather than the transition to a self sufficient sustainable energy future (J. Johnston, 2006: pers. comm., 29 March). Arguably, this makes a comprehensive approach to energy management difficult.

One attempt at comprehensiveness at the national level has potentially reduced comprehensiveness at a regional level. The Resource Management (Energy and Climate Change) Amendment Act 2004 removed the ability of regional councils to consider climate change when assessing resource consents. This was an attempt to have the issue of greenhouse gas emissions dealt with by central government. However, this has meant that when regional councils are assessing resource consent applications, they are unable to comprehensively view the application and consider all the environmental aspects of the proposal.

The briefing document for the 2005 Canterbury Region Energy Seminars, ECan (2005: p3; p20) notes the importance of connecting energy issues with other related issues of mobility, transportation, water use, land use and Canterbury's key

environmental issue of poor air quality. Making these interconnections is part of a comprehensive policy approach. The ECan Regional Energy Strategy has made an attempt to cover energy issues in the region comprehensively. The eight goals contained in the RES cover many aspects of energy, from supply side issues and generation to energy efficiency and demand issues, from transport policies to community involvement and understanding. The RES has a comprehensive problem definition and as such is a good starting document for the region's energy policy.

8.3. Strategic reduction

Whilst comprehensiveness is important, an IEM approach recognises that it is not always possible to achieve everything or address every aspect of the problem or issue. Therefore it is often necessary to selectively focus time and resources on the most important aspects of the issue. This technique is known as strategic reduction.

There is not a great deal of evidence that strategic reduction has occurred in energy management at the national level. The separation of responsibilities between the MED, MfE, EECA, the Electricity Commission and industry players could be viewed as a form of strategic reduction, with each organisation focussing on their specific area of energy management. As mentioned above, however, this approach leaves the Government lacking a comprehensive overview of the energy sector and it would seem unlikely that this structure and division of responsibilities was chosen for reasons of strategic reduction.

An example of strategic reduction at the national level could be the targets set down in the NEECS. The two targets in this strategy relating to energy efficiency and renewable energy are quite specific. They indicate some attempt to focus the direction of government policy onto two important goals, which would deliver significant benefits to the country as a whole should they be achieved. It remains to be seen whether they will be achieved given the current short-term supply focused thinking prevalent in central government.

At the regional level, it is equally difficult to see strategic reduction in ECan's dealings with energy management. In fact, the goals covered in the RES are very

comprehensive and cover many aspects of energy. It is highly unlikely that ECan will be able to address all of these issues in a meaningful way, especially given that there is currently only one staff member working full time on energy issues (although there are others dealing with transport issues). Strategic reduction has apparently not been employed yet, but it seems that it will be necessary in future. Decisions will need to be made over which are the most important issues for ECan to apply its resources to, and which aspects of energy management will provide the most benefit to the region.

It is possible that strategic reduction has not yet been applied at the regional level because the regional council is just beginning to investigate what its role in energy issues should be. Indeed, this report has the goal of assessing what actions ECan's stakeholders want the council to take with respect to energy. Until stakeholder views have been canvassed, it could be seen as premature for Council staff to attempt to prioritise energy issues. Given the lack of clear mandate from central government over the role of regional councils, ECan must seek guidance from its constituents on energy priorities for the region. Strategic reduction is a process which is best left until thorough consultation has been completed.

ECan (O'Connell, 2005: p18) recognise the need to reframe energy problems, a process advocated by Bardwell (1991). This is a form of strategic reduction to understand the key aspects of the problem. For instance, rather than taking the view that the country is running out of energy, this concept can be reframed as a question: "how much energy do we really need?". Critically examining the core nature of the problem in this way decreases the likelihood of goal traps.

8.4. Coordination

Coordination between agencies and policies is critical to ensure that goals are common and complementary. Coordination within and between the various levels of government is discussed here.

At a national level, there is a significant lack of coordination between agencies involved in energy policy. As noted previously, the disbanding of the Ministry of Energy in the reforms of the 1980s dispersed responsibilities for many aspects of

energy management to different government departments. As a result, New Zealand today lacks an overall strategic direction for energy policy. The Minister for Energy, who is part of the Ministry for Economic Development, still has overall responsibility for energy issues. However policy development is spread across a number of departments, primarily MED, EECA and MfE. There appears to be some major inconsistencies between government departments with regard to energy issues. For example, EECA was developed in order to promote the use of renewable energy, while MED has proposed an oil-fired power station to meet energy demands (ECan, 2004: p15). Additionally, there seems to be very little communication and coordination with agencies such as MoT and the DBH, who have significant responsibilities with regard to energy. In recent times, a holistic and integrated approach to energy policy has been lacking.

However, policy documents such as the NEECS do require some coordination, as there is input from various departments in the strategy. Thus far, while the NEECS has attempted to define a policy direction for central government, there remains some dispute as to what this direction should be. The NEECS is soon to be rewritten, and there is hope that a stronger government stance can be adopted here. Policy documents such as the National Policy Statements on Electricity Governance and Gas Governance, seem to be relatively removed from other energy policy documents; perhaps this is because they are higher level statements.

The terms of reference for a National Energy Strategy are to be released in June 2006; such a document would require a whole-of-government approach and would aim to coordinate the goals and actions of government departments involved with energy. It would be desirable for this strategy to be formed to sit at the top of the energy framework, and could therefore ensure coordination between all policies and institutions involved with energy.

There is some evidence of coordination between the national and regional levels. Much of this involves sharing data and information – for example, ECan communicates the results of its regional energy surveys to central government. However, the lack of coordination at national level filters down to local government, and it is difficult for regional councils to coordinate with national government when

they have to deal with so many separate agencies with different functions. In addition, communication between national and regional government seems to be largely a one-way process. Very little policy advice is passed from regional to national government, although this would probably be a valuable contribution to national strategies, to allow them to understand what is happening at the implementation level.

However, there seems to be some degree of communication between regional and national level; for example, the PCE consults with regional and local councils on a project-by-project basis, and EECA shares information with regional and local authorities through its EnergyWise councils scheme. However, most of this communication is superficial, indirect and ad hoc (O'Connell, 2006: pers. comm., 11 May). There seems to be very little guidance from national government, and this leaves regional councils such as ECan, unsure of what role they should play. Of course, central government cannot provide clear guidance until they reach consensus on their own position.

Within ECan, coordination and communication between the various departments could be improved. Because the council is so large, there is a silo mentality; people tend to think only within the boundaries of their specific area. However, there is an informal group within the council that looks at in-house quality management, which has the potential to improve inter-departmental communication. There is communication between the energy and air quality departments, and also with the Clean Heat project; energy input is requested for relevant policies in these divisions (O'Connell, 2006: pers. comm., 11 May).

There is some degree of coordination between ECan and local authorities within its jurisdiction. CCC in particular, is involved in energy issues, because a considerable proportion of the region's population resides within its boundaries. While ECan and CCC do meet occasionally to discuss energy issues, there is a need for them to work more closely. There is a lack of clarity on the roles that each council should take with regard to energy. However, regular communication and sharing of knowledge will surely help the agencies to ascertain their responsibilities. In addition, collaboration on future energy projects would ensure that policies are consistent with each other, and minimise overlaps in research. There is considerable scope for the two agencies to

work together, and importantly, to work with other TLAs in the region, and the RES recognises this.

The Greater Christchurch Urban Development Strategy is a joint cooperative in which ECan and TLAs in the greater Christchurch area are involved. This document has generally encouraged communication between these authorities (O'Connell, 2006: pers. comm., 11 May). However, it is questionable how much this strategy will actually improve coordination, given the conflicts that have arisen in the past between these agencies. While two of the main issues identified - land use and transport – directly relate to energy policy, it is arguable whether the GCUDS has improved coordination and communication with regard to energy issues for the greater urban area. Promotion of energy issues does not necessarily need to come from the energy portfolio at ECan; other members of the GCUDS forum could be more active in energy issues.

8.5. Participation

The broad criterion of participation will be used to answer the question whether the current policy framework surrounding energy-related issues provides for and has been developed through the participation of the various stakeholders at the local, regional and national level. However, this section is not intended to evaluate the quality of the participation procedures that have been used to develop current policies as such an analysis would be beyond the scope of this study.

National energy policy is not as susceptible to participation of stakeholders as regional and local policy. It is also arguable whether public participation in very specific policy documents such as the Government's Policy Statement on Electricity Governance would be very meaningful. Broader policy documents like the NEECS (2001, reviewed 2006) and the SDPA are most receptive to stakeholder participation. The NEECS incorporates a formal process allowing for participation in the development of the document. The Energy Efficiency and Conservation Act 2000 explicitly requires, in developing and reviewing the NEECS, to seek input from representatives of commercial, industrial, environmental, community and Maori organisations, TLAs and the PCE. In addition, the draft NEECS must be published for

submissions. Regarding the energy section of the SDPA, its development through a whole-of-government approach shows there has a least been an initiative to allow relevant official bodies to participate as stakeholders (MED, 2003: p18).

On the regional and local level, there are clear legal mandates for participation. The Local Government Act requires detailed consultation procedures in the development of LTCCPs. Under the RMA, there is the legally mandated submission process that allows the public to give their opinion on the draft plans.

Regional Policy Statements, Regional Plans and Regional Strategies are important guiding documents for both Regional Councils and TLAs. Again, given the number of different energy stakeholders at the regional level, there is great potential for productive participation in the process of developing regional energy policy. As for the reality of participation in energy issues, ECan stated in 2001 that "there has been little recent dialogue with the community, other than through annual plan submissions, to define the role that Environment Canterbury is expected or required to take in energy matters" (ECan, 2004c: p16). This situation seems to have changed, though. The draft Regional Energy Strategy has been released as a discussion document for further stakeholder input into the development of energy policy in 2004 (ECan, 2004c: p1). Also, a significant number of stakeholders interviewed at the regional and local level stated that ECan's energy seminars, held in October 2005, were highly useful opportunities to exchange views on energy issues.

District Plans and LTCCPs constitute the most important policy documents that guide local authorities and their actions. With the exception of the CCC, most TLAs in Canterbury have generally eschewed or only superficially touched upon the issue of energy in their District Plans and LTCCPs, making a review of participative procedures impossible. However, given both the wide variety of local energy-related interest groups and the legal mandates for their consultation, there is definitely great potential for meaningful consultation in developing energy provisions in District Plans and LTCCPs. This is of special importance, as many of the local and regional stakeholder groups interviewed have actively embraced energy issues (e.g. peak oil, building regulations, modes of transport). TLAs in Canterbury have not addressed this.

Altogether, it may be said that the current policy framework provides opportunities for participation in the form of mandates for consultation procedures, especially at local and regional level. On the national level, the mandate for stakeholder participation seems less well entrenched as it does only cover specific policy documents. Whether these mandates have been taken seriously in the development of the current framework of energy policy can only be ascertained on the surface. It seems that on the national level, EECA is trying to conduct meaningful participation to develop the NEECS, giving effect to the legal consultation requirement. ECan's consultation process for energy issues has occurred through submissions (LTCCP and NRRP) and seminars (for the RES). The local level is hard to assess here as the issue of energy has not been taken up into the District Plans and LTCCPs so far.

In summary, taking into account the many stakeholders in energy issues and their variety of expertise and interests, there is great potential for fruitful consultation in the current policy framework.

8.6. Adequate resources

The NEECS was accompanied by greater levels of resourcing and commitment to implement new policies and programmes. However action to date has been insufficient to produce a substantial improvement in energy efficiency and renewable energy uptake at the national level. To enable EECA to lead implementation of the strategy, its budget was increased from approximately $8 million in 1999-2000 to more than $20 million in 2004-05 (MED, 2004b: p24). EECA stated in March 2006, that "achieving a significant improvement in energy efficiency and forging a progressive transition to renewable energy will require greater commitment and an accelerated national effort to seize the opportunities available" (EECA, 2006e: p7). This indicates that the Strategy has not met its targets at least in part due to insufficient resourcing.

MoT's 2004/2005 annual report had one policy output titled "Transport Safety and Sustainability" (MoT, 2005c). MoT's spending on this output increased from $6,526,000 in 2003/2004 to $14,798,000 in 2004/2005. This increased funding was

primarily spent on issues relating to the NZTS. This included MoT's participation in the Climate Change Senior Officials Group; developing transport sector responses to decrease greenhouse gas emissions from transport; improved cross-government linkages through co-funding the joint MoT/CCO role; and investigating opportunities to increase the uptake of latest technology, clean, efficient and safe vehicles. There are indications that resourcing of national energy policies is inadequate, particularly when compared to budgets for other policy areas.

ECan's regional policy initatives, concerning and influencing energy issues are not currently sufficiently resourced. There is one staff member at ECan dedicated to addressing energy issues; there is limited opportunity to adequately deal with all potential issues. Extra staff and funding would allow for further development of initiatives and consequently improved energy management in the region. ECan's LTCCP shows that the budgeted total expenditure for energy in the Annual Plan in 2005/2006 was $237,000 (ECan, 2006: p38). The projected total amount to be spent on energy management in 2006/2007 is $346,257 (ECan, 2006: p16). While increasing, this future funding represents less than 0.004% of ECan's total projected expenditure over this period.

The TLAs seem united in the belief that that they have a limited mandate and resources available to address energy issues. Consequently, many districts within Canterbury have overlooked the consideration of energy in their LTCCPs, and District Plans to a lesser extent. The Ashburton and Selwyn District Plans acknowledge their inadequate resources most explicitly. Their stated reasons for giving energy limited consideration are the cost involved, their limited powers, and the convenience of doing so. Timaru District Plan is the only exception, dealing with energy relatively comprehensively. This can be attributed to quality of their staff resources.

The GCUDS appears to be well-resourced, as it is a collaborative intiative involving CCC, Selwyn and Waimakariri TLAs, ECan, Transit New Zealand, and a range of government, community and business organisations. Approximately $750,000 was budgeted for the strategy between 2003-06.

8.7. Implementation and monitoring

The NEECS' action plans have generally been implemented as intended, but need to be strengthened. Monitoring conducted by EECA indicates that New Zealand has experienced only very modest improvements in energy efficiency. To reach the existing national target would require an improvement of 2.5 percent per year, which is greater than international best practice at 2 percent. Additionally, the overall demand for energy keeps increasing, so the percentage coming from renewable sources is actually decreasing (EECA, 2006c).

In order for the SDPA to be successfully implemented it would require significant leadership from chief executives and senior advisers to ensure sustainable development is at the core of all government policy. This does not seem to have occurred since its inception. The government's associated Energy Policy Framework (2000) has an overall energy policy objective which states "the Government intends to monitor energy developments closely to ensure that these objectives are being achieved" (MED, 2005b). There is little evidence as to whether this monitoring has actually occurred.

Central government announced its climate change policy package in 2002; it was stated at the time that it would be important to regularly review the implementation of the policy package and to continue to monitor innovative policy measures in other nations in order to assess how these could be of relevance to New Zealand. The policy package required officials to provide annual reports that set out progress with existing policy and stated that more comprehensive reviews may be needed in 2005, 2007 and 2010. There appears to be no available information on these reviews.

The Transport Sector Review in 2004 stated that implementation of the NZTS would not occur without substantial changes to the way the sector operated. Since the review, considerable progress has been made on improving collaboration across the government transport sector including the preparation of the first ever strategic plan for the whole sector, the Transport Sector Strategic Directions document (MoT, 2005c).

ECan's monitoring of energy resources in the region occurs through them undertaking the biennial Regional Energy Survey, which was last carried out in 2005. Their second planned energy-related activity for 2004/2005 was making information available about energy efficiency in four major energy sectors – retail, commercial, industrial and agricultural. However, ECan state that "collecting this information was dependent on developing an implementation plan for the Regional Energy Strategy" (ECan, 2005: p38). This implementation plan was apparently delayed to allow ECan to hold a series of public energy seminars in late 2005 (ibid).

The RES is non-regulatory and will depend on support from all sectors of the community to achieve its aims. ECan (M. O'Connell, 2006: pers comm., 11 May) believes that "in essence there is an absence of indicators to monitor the Strategy's implementation and effectiveness". They assert that "the Strategy needs further work (which is now happening) before it is in any state to map its implementation needs. For example, there needs to be stronger links from the vision to goals to objectives to measures/methods and also objectives to specific objectives/results/targets to indicators".

Energy generally has a limited inclusion in Canterbury's LTCCPs and District Plans. Therefore, these policies cannot be critiqued for their implementation or monitoring. The GCUDS will reach the draft stage later this year, so it has not been implemented yet. However, the Strategy began by monitoring and analysing facts on current trends within Canterbury, including energy use. Although the GCUDS cannot dictate what each authority implements at the completion of the project, it provides a strong message about what is expected from the various communities in regards to Greater Christchurch planning.

At the national level, there seems to be an intention to monitor progress of policies upon implementation. However, there is little evidence that this has occurred. Regionally, the RES has not yet reached the implementation stage, and therefore there is limited opportunity for monitoring thus far. There appears to be no public information available on monitoring for the RPS.

8.8. Transparency and accountability

Transparency and accountability are closely related issues that describe the openness of the decision-making process to public scrutiny and the clear assignment of responsibilities among official bodies. In addition, stakeholder participation is closely related to the issues of transparency and accountability.

On the national level, the partly fragmented energy policies on the one hand and the sometimes unclear responsibilities of government bodies make transparency and accountability harder to achieve. While the consultation and notification procedures to develop the NEECS may have promoted transparency, the whole-of-government approach used to develop the energy section of the Sustainable Programme of Action could have had the opposite effect. The whole-of-government approach can make it difficult to identify who is accountable for each action.

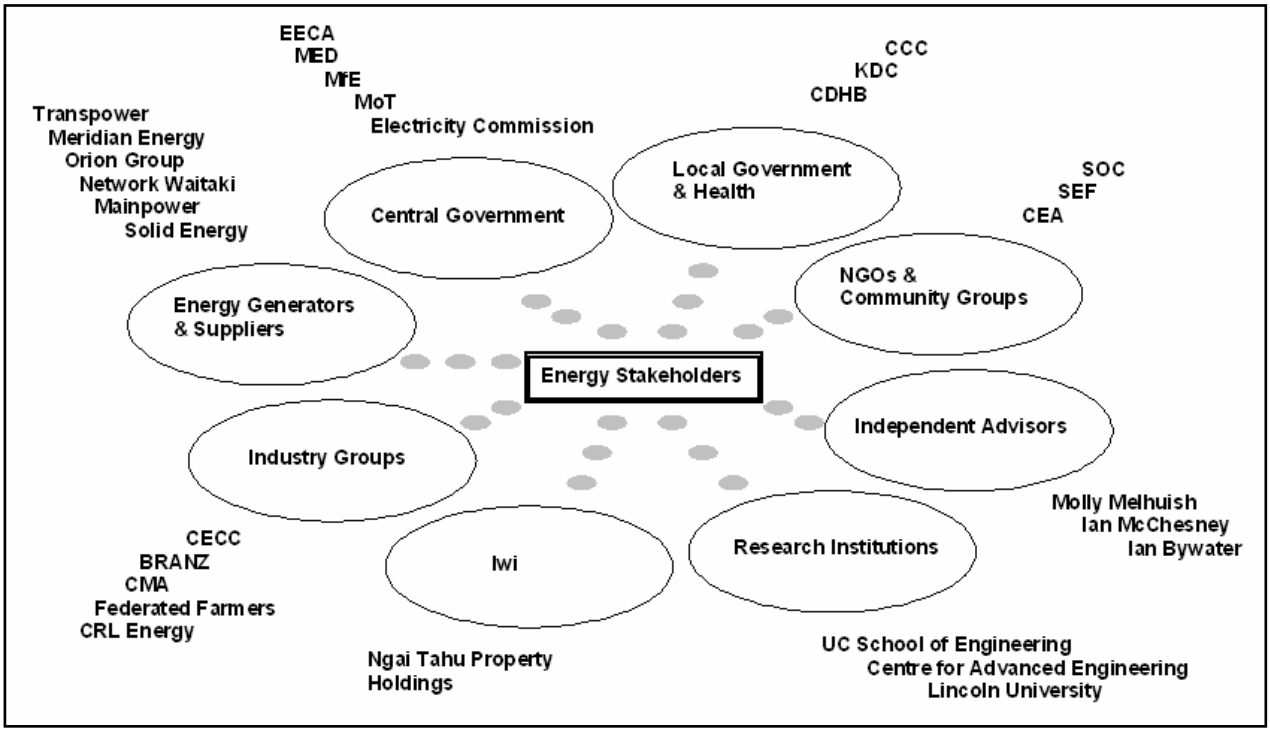
On the regional and local level, requirements under Part 6[3] of the Local Government Act establish a detailed accountability framework for the actions of regional councils and TLAs. This framework intends to enhance transparency in the decision-making process, and establishes detailed procedures for stakeholder participation. The opportunity for 'access to justice', that is, to challenge Councils on their decisions, is also an important feature in the existing accountability framework. The lack of provisions on energy in many of the current District Plans and LTCCPs makes an analysis of the degree of transparency and accountability on the local level impossible. The development of the RES to date appears to be relatively transparent, as ECan is seeking stakeholder input to the strategy.

[3] Part 6 of the LGA relates to planning, decision-making and accountability.

9. Analysis of Stakeholder Views

A stakeholder analysis was carried out as detailed in section 4.2. The stakeholders represented in Figure 5 below, were identified as most important for this study, and their responses to the questions set out in Appendix 2 have been analysed in terms of the IEM criteria set out in section 3.3. Additionally, the responses from the energy seminars in 2005 have been integrated into this analysis.

Figure 5: Energy Stakeholder Groups



9.1. Key Issues for Energy in Canterbury

The participating stakeholders come from a wide range of backgrounds and many have different interests with regard to energy. This is quite apparent in their identification of the key energy issues for Canterbury.

The two issues most commonly raised by stakeholders were security of supply and the capacity of transmission lines peaking. Security of supply relates to both electricity and to diminishing supplies of oil and gas, while the capacity of transmission lines

refers to the fact that the lines servicing Canterbury are likely to reach peak capacity in 2012. Both of these issues are closely related and are long-term, supply-side national matters that have obvious localised effects. Another issue raised by four stakeholders is Canterbury's dependence on imported energy. Some of these stakeholders claim that Canterbury does have the potential for more regional generation, but that there has been a significant lack of development of new energy sources; this has resulted in Canterbury losing much of its self-sufficiency. Four stakeholders also identified the potential benefits of distributed generation as an important issue for Canterbury to investigate. Distributed generation is small-scale, localised generation, and could benefit Canterbury by alleviating some of the stress that irrigation is placing on the national grid, and provide an alternative to upgrading the grid.

Insulation and home heating was also recognised as an important issue by a number of stakeholders. They recognised that a huge proportion of homes in Christchurch and Canterbury are under-insulated and often under-heated. This has wider health implications, particularly for vulnerable groups such as children and the elderly. Several stakeholders involved in generation and supply of energy also recognised the limited heating options that the Air Chapter of the Canterbury NRRP gives to homeowners, and the added strain this places on the national electricity grid as households turn to electric heating sources rather than wood and fossil fuels. Pricing of energy sources and the effect this has on household heating was also recognised by some stakeholders as an issue.

Some transport issues were identified as being of importance. Transport is the largest and fastest-growing sector for energy consumption, but was also identified by stakeholders as being the least efficient user. Stakeholders recommended investigations into alternatives to private transport, and several also discussed the importance of tying in land use with transport and discouraging residential land use at distance from urban centres, where transport systems are not effectively integrated into planning. This is a particularly important issue for the greater Christchurch area.

Other issues identified include ensuring the sustainability of any new electricity generation projects; the impacts of energy use and generation on the environment (for

example air pollution from fossil fuel use and effects on waterways from hydro-generation); and growing demands in Canterbury, particularly for irrigation, running the risk of not being met by supply.

Most of the issues discussed by stakeholders were issues that affect the whole country, not just Canterbury. The overall feeling seems to be that strategic planning in Canterbury is a sub-set of what is happening nationally.

9.2. Focus on broad and common goals

Many stakeholders discussed the need for more leadership and guidance from central government. They recognised that the fragmentation at central government level has made it difficult for regional councils to pinpoint exactly which goals they should be focused on. Some stakeholders felt that central government has given regional councils very little regulatory power with respect to energy, with which to actually achieve these goals. A small number of stakeholders felt that the opposite was true; those with industrial or commercial interests wanted minimal regulatory intervention from ECan with regard to energy.

The issue of home heating and the associated highly visible air quality problems in Christchurch and other Canterbury towns were something that a number of stakeholders mentioned. As this was expressed in the previous section as a key issue for Canterbury, enhancement of air quality coupled with encouraging warmer, healthier homes can be seen as broad goals among stakeholders. Many stakeholders pointed to the Clean Heat project as a good example of the council attempting to tackle this problem.

Several larger stakeholders mentioned the regional energy users group which includes ECan, CECC, Transpower, Orion and Meridian. The group looks at short, medium and long term issues relating to electricity supply in Canterbury. The security of energy supply was stated as a key issue for Canterbury, and this group is working together to achieve this common goal. Other stakeholders also mentioned last year's energy seminars as being an inclusive and proactive attempt to get stakeholders working together to address issues and pursue common goals.

The majority of stakeholders felt that ECan should be primarily focused on demand-side issues in energy management. While security of energy supply was identified as a key issue for Canterbury, most stakeholders felt that ensuring a secure supply of electricity, wood and fossil fuels is a role best fulfilled by central government. Many noted that as New Zealand is such a small country, dividing up responsibility for supply among the various regions would result in inefficiencies and inconsistency nationwide. It is apparent that the majority of stakeholders wish to see ECan focusing on demand management in both electricity and transport.

9.3. Comprehensiveness

Stakeholders recognised that there is a lack of comprehensive energy planning by ECan at present. Some noted that the interconnections between the related aspects of energy use (for example, urban development and transport, building standards and energy efficiency) are not being made and the resulting ad hoc policy making does not allow for comprehensiveness. It was also noted that long-term thinking is lacking at a national level and at the regional level, to some extent.

An example of this lack of comprehensive strategic planning was noted by several stakeholders and relates to the Air Chapter of the NRRP. Stakeholders felt that the Air Plan encourages people to switch away from a sustainable form of heating (using woodburners) to electric home heating. This results in a higher demand for electricity, at a time when energy supply is struggling to meet current demand, particularly during the winter months. It appears from stakeholder comments that there is a lack of comprehensive planning, where one problem is addressed without recognition that this may cause further problems elsewhere in the system. Another stakeholder felt that energy issues were not addressed comprehensively in ECan's recently released LTCCP, with only a short section on energy.

On a more positive note, many stakeholders commended ECan on their efforts in energy so far, with a number also mentioning that they were impressed by ECan's proactive approach in addressing these issues. They recognised that ECan is beginning to address energy issues, despite the lack of a coherent direction or mandate

from central government. The MoT interviewees were impressed by ECan's inclusion of transport as well as electricity in the seminars (T. Fraser & D. Corlett, 2006: pers. comm., 18 April). This shows an effort to link related issues to elevate them on the policy agenda.

As for the future, a number of stakeholders feel that ECan should be taking a lead role in strategic urban planning in the region. Strategic transport planning is considered a major part of this, via the RLTS. The Resource Management Amendment Act 2005 gave regional councils responsibility for their region's infrastructure planning and land use. Coupled with the fact that TLA's district plans must now give effect to the regional policy statement, and in addition to the transport role under the Land Transport Act (LTA), this provides regional councils with a strong mandate to effect comprehensive regional planning.

Several stakeholders felt that this long-term strategic planning role should include moving the region towards a sustainable energy future. Exactly what this would entail was not made clear; it was enunciated as more of a broad, overarching goal for ECan to pursue. A strong and clear statement of regional objectives in the form of a robust regional policy statement would provide guidance to TLAs and assist in addressing cross-boundary issues.

9.4. Strategic reduction

ECan's partnership and collaboration with the organisations in the regional energy users group to identify strategic energy issues, shared goals, policies and methods of achieving these shows strategic reduction at work. A number of the stakeholders recognised the strategic importance for ECan in forming partnerships to implement energy policy both to add credibility and profile to key energy issues and policies and to pool resources to deliver them. It appears that the membership of these groups may have been limited deliberately to facilitate action.

Most stakeholders mentioned the Clean Heat project as evidence of ECan's leadership on air quality initiatives and agreed that air quality was a key energy-related issue.

The Clean Heat project shows evidence of strategic reduction as funding has been targeted at home heating as the cause of 90% of Canterbury's air pollution.

A number of stakeholders mentioned the lack of guidance from central government which may be a barrier to strategic reduction. Without clarity around its jurisdiction on energy, it is difficult for ECan to narrow down the many interrelated energy issues to a discrete number of issues to focus on. Once there is clearer national policy direction on energy policy, for example via the National Energy Strategy (NES) and a revised NEECS, ECan will be better placed to determine its strategic role in energy policy.

When asked whether ECan should focus more on supply or demand issues, the majority of stakeholders advocated ECan focus on demand. This can be a form of strategic reduction for ECan which will enable them to target their resources where they will be most effective. Most stakeholders felt that it would be inefficient for regions to manage supply side issues.

9.5. Coordination

Coordination is an important factor in addressing energy issues as the field of energy affects a variety of sectors and attracts numerous stakeholders. Energy is associated with many issues such as urban planning, transport and others so that coordinating policy responses to these issues is vital to achieve an integrated approach (policy coordination). Coordination among the different stakeholders is essential to allow for the integrated management of this important issue (organisational coordination).

National and regional stakeholders perceived some problems with regard to coordination of energy policy, both nationally and locally. Some of the stakeholders explicitly argued that the lack of central government guidance makes it challenging to come up with policy responses that are coordinated between national and local government. Central government policies have been described as lacking integrated thinking that links energy, climate change policy and transport policy. The necessity of a guiding national policy such as the National Energy Strategy (NES) was repeatedly stressed as potentially addressing these gaps. Another suggestion in this

respect was for regional councils and TLAs to build the targets of the NEECS into their plans. Coordination would then occur by aligning regional with national policy.

Two stakeholders considered that there is a conflict between ECan's policy making and regulatory roles. The Clean Heat project contradicts ECan's renewable energy policies by removing wood as a home heating option. In the same vein, these stakeholders felt that ECan policies and consent process can create barriers to hydro-development which is another renewable source of energy. This shows a lack of internal policy coordination. It should be noted here that these arguments were made by representatives of the business community.

Some regional stakeholders pointed out that, on the regional level, there is very little cooperation among regional councils and TLAs. This has been highlighted with regard to land use planning and transport planning, but also applies in general. The lack of cooperation between the regional council and TLAs on the local level means that it is difficult to coordinate policy responses regionally and locally. Cooperation at the regional level between ECan and interest groups is perceived far more positively. ECan enjoys an overall very positive role as convenor and facilitator for energy issues among regional stakeholder groups. The interviews also highlighted this facilitator role as one of the major expectations of ECan on the part of the stakeholders. Again, the energy seminars held in late 2005 were mentioned as main example in this respect. A significant number of respondents also found that ECan is demonstrating good leadership on energy issues with its policies and strategies, a further sign that ECan tries to coordinate a regional policy response given the lack of guidance at the national level.

9.6. Participation

A number of the stakeholders, including many of those identified in this study, participated in the energy seminars held in 2005. A significant majority of stakeholders who attended these seminars found their participation to be of value, and believed it was worthwhile for ECan. ECan works with two stakeholders on the Clean Heat project (CEA and CCC), and a further stakeholder (MoT) on the Regional Land Transport committee. An independent energy consultant stated that "ECan does a

pretty good job in making sure it connects with and supports the other organisations involved in energy".

The regional energy users group is a good example of ECan working with stakeholders. Its weakness is that there is no single, strong residential energy group involved, to represent a broader public view. Additionally, ECan is one of the stakeholders in the regional energy users group. There seems to be general agreement amongst a majority of stakeholders interviewed that ECan provides sufficient opportunity for stakeholder and community participation.

Participation of stakeholders and the wider community should continue to be actively encouraged by ECan through similar initiatives to the energy seminar series, in an attempt to integrate their diverse views and information. A community-based organisation commented that future processes must be inclusive of all stakeholders, engaging all sectors of the community to identify their views on energy issues from low income families, through to small and big businesses. The CCC believes they need to work with ECan on joint energy initiatives because this will allow for the most effective energy management (L. Itskovich, 2006: pers. comm., 18 April).

9.7. Adequate resources

Several interviewees suggested that while ECan has raised good ideas, like other regional councils, it appears to lack the staff and funding to implement them. They felt ECan should have energy managers for specific areas, as energy encompasses a wide range of issues. Despite this lack of resourcing, several stakeholders acknowledged that ECan is at least being proactive in addressing energy issues through having appointed an energy policy manager and holding energy seminars in late 2005, as many other regional councils do not appear to have given energy much consideration.

ECan has committed $38 million over an eleven year period to its Clean Heat Project which promotes energy efficiency, and is the biggest non-central government spender on energy efficiency. However, it was noted by some stakeholders that ECan's vast resourcing of this project consequently meant there appeared to be limited resources

for other energy-related initiatives, and energy seems to be a relatively minor part of their total activity.

A common theme emerging from the stakeholders' responses was that ECan needs to divert more funding into energy in order to best address energy issues. Significantly increased resourcing is vital if ECan is going to take a leading role in regional energy issues. ECan should create a fund to assist energy research and development, and to support public demonstration projects to continually raise public awareness. Many stakeholders emphasised that funding of renewable and sustainable energy projects is required. One stakeholder highlighted the fact that there is a lot more ECan could do without spending much money. This includes providing some funding to actively support existing and new community education.

The representative from the PCE's office (2006: pers. comm., 28 March) noted that "the key to greater regional government involvement in energy policy is empowering regions to be more independent". This statement was supported by three other stakeholders who noted that should devolution of energy responsibilities to regional councils occur, adequate funding must accompany this.

9.8. Implementation and monitoring

The general feeling from interviewees was that energy policy development at ECan was in an early discussion phase and therefore had not reached the implementation and monitoring phase. Stakeholders were engaged at the 2005 energy seminars to consider their potential contributions to energy policy development. The question of who should take the lead on energy issues was also considered.

ECan is not yet in a position to implement wide-ranging energy initiatives. It is using the RES as a tool to engage stakeholders on what they see as key energy issues. ECan currently does not have a strong mandate for energy policy from the community (ECan, 2004c); and there is a consensus from stakeholders interviewed on the lack of clear national energy policy guidance.

One major energy-related project that has reached the implementation stage is the Clean Heat project. Interviewees on the whole seemed to be impressed by the implementation of this project. One stakeholder commended ECan for expanding project incentives to offer interest free loans. This shows that ECan was able to improve implementation when monitoring of the project showed that cost was a barrier to public uptake.

Most stakeholders believed that ECan should focus on demand rather than supply issues and that these initiatives would influence supplier behaviour. Suggested methods for implementing demand management at a regional level included implementing education and incentive policies to promote energy efficiency, in particular in domestic energy use and transport. Interviewees from the MED and PCE office recommended introducing smart meters as an educational tool for residential electricity customers.

Some stakeholders referred to a possible implementation role for ECan in supply management in terms of advocating greater security of supply and promoting research into energy supply options such as distributed energy, wind and solar power. One stakeholder sees a key role for regional councils in expanding the regional energy surveys to monitor the availability and distribution of potential energy resources in the region, such as areas of high solar energy and high wind energy. These would identify suitable sites for future supply projects which could be promoted to potential investors.

9.9. Transparency and accountability

A significant number of regional stakeholders pointed out in their interviews that they were generally satisfied with ECan's approach to actively seek the input of stakeholders. This is relevant for transparency, as it indicates that ECan is not dealing with energy issues behind closed doors but actively opening the policy process to stakeholders. Again, ECan's energy seminars, providing stakeholders with opportunities to connect and express their views, were often mentioned as an example of this. Though stakeholders think that ECan is doing some good consultation work, the practice of informal meetings, though promoting participation of some

stakeholders, may potentially counteract transparency. The informal relationships between ECan and other bodies such as the regional energy users group may be beneficial for organised stakeholders, however they are less transparent for the general public.

10. Conclusions

It is apparent from the preceding discussion that stakeholders do perceive an important role for ECan in energy policy. They recognise that the lack of firm policy guidance and the absence of a clear mandate from central government leaves regional councils in a difficult situation. This has become apparent during the analysis of national and regional policy, and through stakeholder interviews. This lack of guidance or even action from central government on important energy issues has left regional councils such as ECan attempting to step in and fill the void. However, stakeholders were relatively clear when they indicated that they expect more action and coordination from central government and that regional councils should not be left trying to make up for any inadequacies in national level energy planning.

The development of the National Energy Strategy could be seen as recognition by central government that comprehensive, coordinated long term planning has been absent in recent years. It is hoped that this strategy will provide the overall guidance that is required, help to clarify the goals to be achieved and articulate the roles for all levels of government. If this is the case, then perhaps the perceived need for regional councils to 'do more' with regard to energy management will be eliminated.

The stakeholders interviewed generally do not see a role for ECan in supply side energy issues such as electricity generation, except as a consent authority. Stakeholders felt that supply side issues are best dealt with centrally. Some stated that because New Zealand is such a small country, devolving responsibility for the energy supply sector to the regional level would result in inefficiencies, fragmentation and inconsistency between regions. While stakeholders generally do not see a direct role for ECan in the development of energy generation, a number of stakeholders believed that ECan should provide support for research and innovative energy projects – for example, micro-hydro generation.

Stakeholders feel that ECan's key roles should be in managing demand side issues and addressing the adverse environmental effects of energy generation and use through their role as a consent authority. A number of stakeholders mentioned the

council's important role in energy through water allocation for hydro power and other uses.

Another major role for ECan that was recognised by stakeholders is in strategic regional land use and transport planning. ECan should use their newly strengthened powers under the RMA as the key regional planning authority to encourage land use and urban development which minimises the use of energy. A vital part of this role is reducing the use of private motor vehicles by providing an efficient public transport network and consolidating settlement patterns around this. The Regional Policy Statement should be used to its full extent to guide the district plans of the Canterbury TLAs. Providing leadership, guidance and support to TLAs who are currently (with some notable exceptions) doing little to address energy issues is key to encouraging sustainable and energy efficient land use and development.

Promoting energy efficiency is another significant role for ECan to focus on, according to the stakeholders consulted. It was noted that energy issues, and especially conservation, are only in the public eye in times of shortage or crisis. Raising public awareness of the financial, health and environmental benefits of energy conservation at home, work and through transport and travel is seen as vital. ECan should be supporting and promoting new technologies, such as solar technology, through funding and grants, and helping to publicise them through education and information campaigns. The Clean Heat project was applauded as an excellent example of the type of initiatives ECan should be pursuing.

Stakeholders feel that ECan should be trying to influence the standards of new homes and buildings. Certain energy efficiency measures should be standard in all newly built homes, such as insulation and double glazing. The installation of solar water heating should be encouraged. Building design and orientation to capture maximum solar energy should be mandatory considerations. ECan should lobby central government and district councils to enact and enforce more stringent building standards to ensure that new houses being constructed are of a higher standard than at present.

ECan's resourcing for energy issues should be increased. Although some stakeholders noted that many councils have no staff dedicated to energy issues, many recognised that more than one energy policy analyst is required to design and implement the initiatives that have been suggested. Available resources should be targeted at the issues and actions that stakeholders have identified as being a priority. The recommendations that follow should be used to strategically reduce these initiatives.

ECan should take a facilitative role with energy providers and key commercial and industrial energy users. For example, members of the regional energy users group view ECan as an equal stakeholder rather than a leader. However, a leadership role is required for the wider community; ECan need to promote awareness of energy issues and lead by example. There is a significant lack of energy provisions in TLA policy documents, as identified in the analysis of institutional arrangements. ECan need to assist TLAs within its boundaries, particularly those with limited resources, to develop and implement energy initiatives. Additionally, the success of ECan's Clean Heat project has provided a model for other regional councils, which stakeholders believe has significantly increased awareness of energy-related issues. ECan could build on this role and lead the way with energy efficiency projects.

10.1. Implications for the RES

The process of strategic reduction needs to start with the draft Regional Energy Strategy. Currently the goals in the RES are wide and all-encompassing. This report has shown that the Canterbury stakeholders interviewed see that ECan's focus should be on demand management and energy efficiency issues, promoting and supporting new technologies, strategic land use and transport planning and mitigation of the environmental effects of energy through consenting. The RES needs to be modified to reflect these policy directions and to lay out a clear path for ECan's future energy policy.

It is essential that the RES be aligned with national policy documents. A National Energy Strategy and an updated version of the NEECS are currently being formulated. These will have implications for regional energy policy, and the RES should be

consistent with these national-level documents, to ensure policy coordination and pursuit of common goals.

Stakeholders who were involved in the energy seminars recommended that follow-up from these seminars takes place. They felt that while the seminars were useful, they occurred in isolation. Some stakeholders indicated at the seminars that they would be willing to take a leadership role on individual projects. ECan should ensure that ongoing, regular meetings with these stakeholders takes place, to ensure that the enthusiasm generated by the seminars is not lost.

To date, there has been no public consultation on the RES. Consultation with the community needs to occur during the further development of the RES. This consultation should include community groups such as residents associations and community boards, as well as a formal public submission process. Information should be made available through a variety of means; this could include leaflet drops, the ECan website, advertisements and interactive displays. This will enhance public awareness and understanding, and help to involve the wider public in regional energy issues.

11. Recommendations

ECan should act upon the following recommendations in order to meet stakeholder expectations. This will strengthen both the RES and RPS and should encourage stronger stakeholder support and involvement in future initiatives. A number of the recommendations have already been proposed in the RES; stakeholders have demonstrated strong support for the actions below, and therefore ECan should prioritise these over other methods outlined in the strategy. These recommendations start broadly at the national level and proceed to focus on specific regional initiatives.

- **Contribute to development of national policies**

ECan should ensure that they are actively involved in the development of the National Energy Strategy and the reviewed National Energy Efficiency and Conservation Strategy. This will help to work towards common national goals, ensure that these goals incorporate regional perspectives, and encourage successful implementation. It is also important that they contribute to any other energy policy documents that may have implications for Canterbury.

- **Align regional policies with national policies**

Environment Canterbury must align regional policy documents, particularly the Regional Policy Statement and the Regional Energy Strategy, with national policies and strategies once these are in place. This will ensure consistency and policy coordination.

- **Refine the goals of the Regional Energy Strategy**

Currently the RES contains eight broad goals. These goals need to be refocused and reduced in order to ensure that the document achieves the outcomes that the stakeholders are seeking. Section 7 of the RES proposes further development of the strategy following stakeholder consultation so that their views can be incorporated.

- **Increase resources for addressing energy issues**

In order to effectively implement these recommendations, ECan will need to allocate more funding and staff to addressing energy issues.

- **Use the Regional Policy Statement to coordinate energy policy in Canterbury**

It is important that all district councils in Canterbury address energy issues in their plans and operations. ECan should include objectives and policies for energy in its Regional Policy Statement. TLAs have a statutory obligation to align their District Plans with the RPS. A review of the Regional Policy Statement is about to commence, and this would provide an excellent opportunity to incorporate more specific goals for energy into the document. Requirements relating to efficiency in building and public transport, for example, could be included.

- **Ensure that settlement patterns minimise energy use**

ECan should encourage sustainable settlement patterns that minimise energy use, particularly the use of transport fuels through high use of private transport. Promotion of urban containment and provision of an efficient public transport network are essential in this respect. ECan should stress the importance of these issues in the development of the GCUDS and the review of the RPS.

- **Facilitate stakeholder interaction**

Many stakeholders have communicated that they see the optimal role for Environment Canterbury in energy as a facilitator. Environment Canterbury should facilitate discussion within and between the various sectors of energy management in the region. This will help to maintain consistency between projects and initiatives that may be undertaken by other stakeholders (including TLAs), and with Environment Canterbury's own initiatives. This can also extend to facilitating discussion in-house, to ensure that regional policies for water, air quality, transport and land use complement each other and take into account energy matters.

- **Public education to encourage energy efficiency**

ECan should instigate new and support existing public education campaigns that highlight the economic and environmental benefits of energy efficiency to promote more socially responsible behaviour. Campaigns should target residential, commercial and industrial energy users. These should be ongoing and not simply reacting to

energy crises. In this way, energy efficiency issues will become entrenched in the public consciousness. For example, ECan could provide further support the 'Sustainable Households' initiative for domestic users and CCC's Target Zero programme for business and industry.

- **Support research and development in energy solutions**

ECan should support the development of new, innovative projects that make efficient use of energy or reduce dependence on the national electricity grid and demand for fossil fuels. A fund should be set to provide financial support, and ECan should investigate a scheme for granting of temporary resource consents to allow the development of innovative projects, where there are no potentially significant long-term adverse effects of the project.

- **Encourage environmentally responsible distributed generation projects**

ECan should encourage smaller distributed generation projects in the region. Such schemes have the potential to significantly reduce demands on the national grid, and in particular micro-hydro power generation through irrigation schemes could assist rural communities in becoming self-sufficient in terms of energy use. The effects of this can potentially benefit both the region, particularly when looking past 2013 when lines companies may no longer be required to service existing customers.

- **Encourage the development and use of bio-fuels**

Transport accounts for more than half of Canterbury's total energy use. ECan should encourage the development of bio-fuels for use in the region. Support of both in-house investigations and developments in the private sector is necessary. It would be desirable that the region's public transport and ECan's vehicle fleet are converted to run on bio-fuels in the near future. This would contribute to a reduction in energy consumption and set an example for private vehicle users.

- **Introduce incentives for energy efficient measures**

Providing financial or other incentives for incorporating energy efficient measures into buildings, such as solar panels, would almost certainly increase the uptake of these. The Clean Heat project is an excellent example of how this is being achieved;

future projects should build on this initiative and focus on reducing demand for energy.

- **Continue with and expand on regional energy surveys**

The biennial regional energy surveys are considered an important initiative by many stakeholders and ECan should continue to do these. The surveys should be extended to include data on potential energy resources and sites for generation in the region. The results of these should be passed onto central government to allow for better coordination of national and regional policies.

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Appendix 1 – Study Brief

Environment Canterbury and regional energy issues: determining an optimal role for a regional authority

Purpose

A four-month group case study (ERST 635) conducted in the first semester of the academic years is undertaken as part of the requirements of the Master of Environmental Policy (MEP) degree at Lincoln University. It is normally geared towards meeting the needs of an external 'client' whilst maintaining standards of academic rigour. The final output is judged academically by the subject examiner with advice from the external client.

In 2006 the external client is Environment Canterbury (ECan). The brief below sets out the terms of reference for a group case study to examine the key issues that need to be considered in establishing an effective framework.

Background

Although there is a requirement under the legislation for ECan to be involved in the region's energy issues, there is little indication of what, if anything, the community expects from the organisation in this context. Other than through annual plan submissions, there has been until relatively recently, little direct dialogue with the community, to define the role that ECan is expected or required to take with regard to energy.

An energy strategy for the Canterbury region began its development in about the mid-1990s under the auspices of ECan. Released in 2004 and currently still in draft form the Regional Energy Strategy (RES) is intended to provide a framework within which energy issues can be identified, prioritised and addressed in a manner consistent with legislation such as the Resource Management Act (1991), the Local Government Act (2002) and the Regional Policy Statement (1998).

In late 2005, a regional energy seminar series was held to give greater substance to and help inform the RES. This interaction with stakeholders and community representatives acted nominally as the consultation process. The Long-term Council and Community Plan (required under the Local Government Act [2002]) is also another vehicle to which there is a significant focus on community input into energy planning and decision-making.

ECan also prepares a bi-annual survey of energy trends in the region, a process that has been occurring in one form or another since the late 1960s. Additionally, there are projects examining resource use, energy demonstration (best practice), partnerships with 'energy wise' councils, greenhouse gas reduction targets and sustainable buildings.

ERST 635 Project brief to students

In general terms the students are to act on behalf of the client in assessing the most appropriate role and approach for the organisation given that

a) the initiatives noted above are already under way (as may be others);
b) there are historical factors relating to energy planning at a national level, and;

c) the boundaries between jurisdiction between the three nominal; tiers of governance in natural resource management are not always clear, the latest (August 2005) amendment to the Resource Management Act (1991) notwithstanding.

Anticipated task areas:

- Brief review of the history of energy policy in New Zealand prior to the mid-1980s
- Brief review of the history of energy policy in New Zealand since the mid-1980s and development of 'independent' policy in Canterbury
- Scrutiny of key policy documents and plans , including the Natural Resources Regional Plan (NRRP), the RPS, the RES, the LTCCP, etc …
- Identify the key energy stakeholders in the region, their key inter-relationships and organise interviews with appropriate contacts
- Analysis of responses to key questions posed at 2005 energy seminars, identifying areas for action and how one would go about the development of action plans to tackle these key issues
- Does the draft RES require a major overhaul to become 'operable'? How will the responses referred to above inform this process? So that its recommendations become fully considered by Council
- Investigate the relationship between the RES and national energy policy
- Consider whether ECan should be able to independently mandate energy policy
- Clarify the distinctions between, and tensions around, expectations of ECan as both a facilitator and leader organisation.

Appendix 2 – Stakeholder Interview Questions

Questions for regional stakeholders

1. What is your role in this organisation?
2. What do you think are the key energy issues for Canterbury?
3. How does your organisation work with ECan and local councils?
4. How well do you think ECan is addressing energy issues?
5. Do you consider that ECan has enough regulatory power with regard to energy issues?
6. Should more responsibility for energy management be devolved to regional and/or local councils or should responsibility remain primarily at national level?
7. Should ECan be focused on supply or demand issues?
8. Do you think regional councils have enough support and mandate to effectively address energy issues?
9. Is energy as a policy issue taken seriously enough at a regional level, particularly in the face of future energy crises (i.e. peak oil, climate change)?
10. What does your organisation envisage as the optimal role for regional councils to take with regard to energy issues?
11. What sort of energy initiatives, if any, would you like to see the regional council promoting or being involved in?

Questions for national stakeholders

1. What is your role in this organisation?
2. What are the key energy issues for New Zealand?
3. How is your organisation working with regional and local councils?
4. How well do you think regional councils are addressing energy issues?
5. Do you consider that they have enough regulatory power with regard to energy?

6. Should energy management be devolved to regional and/or local councils or remain primarily a national issue?

7. What are the barriers to successful energy management?

8. Should regional councils be focused on supply or demand issues?

9. Do you think regional councils have enough support and mandate to effectively address energy issues?

10. Do you think energy should be viewed as an economic or environmental issue?

11. Is energy as a policy issue taken seriously enough at a national level and at a regional level, particularly in the face of future energy crises (i.e. oil)?

12. What does your organisation envisage as the optimal role for regional councils to take with regard to energy issues?

Appendix 3 – History of Energy Policy

In order to understand the current national and regional institutional arrangements for energy management, it is important to view them in their historical context.

National Energy Policies

The Early Years

Wood was the predominant form of domestic energy used in New Zealand before the twentieth century. Early in the 1900s, coal became the most common energy source, for domestic as well as industrial use (Johnson, 2001: p35). Electricity first flowed in New Zealand in 1861, and became more popular in the 1870s and 1880s as transmission areas were widened. Early electricity developments were initiated by private companies and local authorities (PCE, 2003: p15).

By the beginning of the 20th century, central government had started to consider becoming actively involved in electricity generation. The government started to investigate large-scale schemes that interconnected the small-scale generation stations being developed by local authorities. The government's objective with regard to energy at this time was to 'extend supply as far as possible', and to encourage growth in demand for electricity by keeping prices low (PCE, 2003: pp 15-16). Throughout the mid 1900s, central government's main goal was to ensure that smaller, more remote settlements had access to the national electricity grid. During the 1940s, oil replaced coal for a number of uses, and hydro-electric schemes significantly reduced demand on fossil fuels (Johnson, 2001: p35).

The 1970s – Supply Crisis

Energy became an increasingly important issue in the 1970s. In 1973, the first of several 'oil shocks' prompted concern about New Zealand's energy supply. Demand for electricity continued to grow until 1976, when it began a slow decline. Programmes for exploitation of the nation's significant natural energy resources were accelerated, including exploration projects for oil and gas. The Maui gas field, discovered in 1969, became an extremely important source of energy (Johnson, 2001: pp 36-37).

Energy conservation programmes were stepped up, and public awareness of the crisis increased (Johnson, 2001: pp 36-37; Treasury, 2005). Major power stations were constructed as a result of this, to cope with the increasing demand for energy, even though the growth in demand had begun to decline. These power stations were so sufficient that no more were built before 1994 (Johnson, 2001: p37).

The Ministry of Energy was established in 1978 to coordinate national energy planning and policy. The environmental movement was beginning to take off, and there was public concern regarding the environmental impacts of energy production and generation developments. The first energy discussion document was released in 1978, and focused on meeting New Zealand's energy demands, while minimising the economic, social and environmental costs – a triple bottom line approach (Johnson, 2001: pp 36-38; PCE, 2003: p16; J. Peet, 2006: pers. comm., 13 March).

Before 1990, local distribution and supply of electricity was the responsibility of Electricity Supply Authorities (ESAs), of which there were 61 at the time of disestablishment. They were 'electorally oriented, statutory authorities', and often the ESA was a department in the local territorial authority (MED, 2005a; J. Peet, 2006: pers. comm., 13 March). Upon its establishment, the Ministry for Energy was responsible for the generation and transmission of electricity throughout New Zealand (PCE, 2003: p16).

Around the same time, the 'Think Big' strategy came into force. This involved the government looking into a balanced package of measures to increase the nation's self sufficiency in energy. Converting gas from the Maui field for use in transport, bulk domestic use through reticulation systems in the North Island, and developing wind energy systems were all considered by the government during this time; the first two were encouraged in practice, but wind energy was not considered to be a financially viable option at the time (Johnson, 2001: pp 38-39).

By the beginning of the 1980s, government had a surplus of energy, supplied by a number of hydroelectricity schemes and the Maui gas field. As a result, several energy-intensive industrial projects were developed. The electricity supply excess continued into the late 1980s and early 1990s (Johnson, 2001: p39).

Government Reforms

In 1984, the Labour party was elected to power. After a long period of conservative governance, Labour was elected on the basis of its manifesto promising major reform. The state was in an economic crisis; inflation and unemployment were high, economic growth was low and the New Zealand economy was heavily protected (Cocklin, 1993: pp 883-884). As a result, Labour embarked on a programme of extensive public sector and economic restructuring aimed at increasing economic efficiency.

In 1986 the Ministry for Energy released a review of issues. This document announced that government would have limited interference within the energy sector, and that markets would lead the development and management of energy. Government involvement in large scale public works (such as hydroelectricity development) ceased, and responsibility for such works was passed onto the private sector (Cocklin, 1993: pp 881-884; Johnson, 2001: p39).

The State Owned Enterprises Act came into force in 1987. This established nine limited liability companies, one of which was the Electricity Corporation of New Zealand (ECNZ). ECNZ was responsible for the generation and retailing of electricity, and for transmission across the national grid, through its subsidiary, Transpower (MED, 2005a; PCE, 2003: pp 16-17).

In the same year, an electricity task force was set up with members from various government departments, ECNZ and several ESAs to advise the government on the structure and regulatory environment in the electricity industry. In 1989, they made a number of recommendations to government. The most significant of these recommendations were that

- Ownership of transmission and generation should be separated
- There should be consideration of the creation of a wholesale electricity market
- Transmission should be owned by a group of generators and distributors
- ESAs should be corporatised and privatised, and that the franchise boundaries should be removed, along with the responsibility of ESAs to supply electricity to these areas (MED, 2005a).

In December of 1989, the Ministry of Energy was disbanded. As of January 1990, the Ministry of Commerce was given responsibility for the Ministry of Energy's policy, regulatory and other non-commercial roles, through their Energy and Resources Division. A small number of the Ministry of Energy's commercial responsibilities were transferred to Treasury (MED, 2005a). Late in 1990 the government ordered the corporatisation of ESAs, although Municipal Electricity Departments would continue to be owned by local authorities (MED, 2005a; J. Peet, 2006: pers. comm., 13 March).

In 1991, the Energy Sector Reform Bill was introduced to Parliament. This document outlined provisions to facilitate the corporatisation of ESAs and a number of other regulatory instruments. This Bill was later split into five Acts, including the Energy Companies Act 1992 and the Electricity Act 1992. The Energy Companies Act 1992 provided for the corporatisation of ESAs, while the Electricity Act 1992 provided for the deregulation of the sector, by permitting the removal of the distributors statutory monopolies on their areas, and releasing them from their obligation to supply electricity (MED, 2005a; PCE, 2003: p17).

In June 1992, after a hiatus in energy policy development, the government announced their energy policy framework:

> 'The Government's key objective in the energy area is to ensure that energy services continue to be available at the lowest cost to the economy, consistent with sustainable development.
> This will be achieved by the efficient and effective provision of energy services through properly functioning commercial systems with competitive incentives. These systems will work within an effective and stable regulatory environment and take energy conservation into account' (MED, 2005b).

In October 1992 the Energy Efficiency and Conservation Authority was set up to develop, implement and promote strategies to improve energy efficiency (MED, 2005a). In the same year low rainfall led to lowered storage levels in the South Island's hydro lakes. This was perceived as a power crisis and a number of energy efficiency measures were put in place. Government established an Electricity Shortage Review Committee, who recommended financial incentives to reduce

electricity demand and to increase public awareness of energy efficiency strategies (PCE, 2000: p25).

In June 1993 the government announced a Renewable Energy Policy Statement[4] to encourage the use and diversity of renewable energy options. Climate change was recognised as an important issue in the same year, and a strategy was developed that encompassed three principles - environmental effectiveness, economic efficiency and equity (PCE, 2000: pp 26-27). In 1994 the government approved a long term strategy for energy efficiency, which integrated initiatives in a variety of sectors, including building, transport, appliances, and research into renewable technologies. This strategy received $8.45 million from the government for implementation.

Also in 1993 Transpower became a standalone entity, responsible for the national transmission of electricity (MED, 2005a; PCE, 2003: p17). The NZEM (New Zealand Electricity Market) and MARIA (Metering and Reconciliation Information Agreement) were two wholesale electricity market arrangements that came into effect in 1993 (MED, 2005a: PCE, 2003: p17). In 1994 Transpower became a State Owned Enterprise (SOE). ECNZ was separated out into two SOEs – ECNZ and Contact Energy. Contact Energy was later privatised (MED, 2005a). The wholesale electricity market started operating in 1996. In 1998 the Electricity Reforms Act 1998 required that corporate separation of lines and energy businesses be completed by 1999; this was achieved earlier than expected (MED, 2005a). In 1999 ECNZ was split into three competing state-owned generators – Genesis, Meridian and Mighty River Power (MED, 2005a; PCE, 2003: p17).

In 2000 a Government Policy Statement (GPS) was released for energy through the Commerce Commission. This statement communicated government's preference for industry based solutions within the electricity sector, with regulatory intervention only where necessary (MED, 2005a). An Electricity Commission was established in 2004 to take over governance of the electricity industry. The Commission is a Crown entity, whose role is to ensure that New Zealand's electricity demands are met (MED, 2005a; PCE, 2003: p17).

[4] Not a National Policy Statement prepared under the RMA

New Zealand is now about 90% self-sufficient in terms of energy; renewable energy sources such as wind and hydro power, as well as gas from local fields such as Maui and coal from our relative wealth of mines, are the main sources of our energy. The balancing 10% is imported oil (Treasury, 2005). However, as oil depletion and electricity and gas shortages become more of a reality, energy is again becoming a dominant policy issue, at a national, regional and local level.

Regional Energy Policy

Before the deregulation of the electricity sector, local energy generation and supply was a matter for ESAs. In Christchurch, the City Council was responsible for a Municipal Electricity Department; surrounding districts each had an Electricity Supply Authority to ensure local supply. The tariffs for electricity were set by a political process rather than today's market-based process (J. Peet, 2006: pers. comm., 13 March). In 1992, after the reform, these ESAs were forced to sell their lines and freed of the responsibility of supply to their area (MED, 2005a). Private companies were now responsible for the generation and supply of electricity, nationwide. Some of these companies are still part-owned by local authorities – for example, the Orion Group is still largely owned by the Christchurch City Council (J. Peet, 2006: pers. comm., 13 March).

Regional authorities have no direct statutory role in the supply of electricity. However, they do have a role to play with regard to generation; that is, they may approve or deny resource consent applications for generation schemes, and therefore have a substantial part to play in renewable energy issues (J. Peet, 2006: pers. comm., 13 March).

National Transport Policy

The Ministry of Transport was first established in 1968, at which time it was a 'super Ministry', encompassing all modes of transport, and including traffic enforcement staff, the Marine Department and the Meteorological Service. Since then, the Ministry has been significantly downsized, and a number of divisions of the Ministry have become SOEs – for example, the current Transit New Zealand was once the roading

division, and the Meteorological Service has been separated from the Ministry's operations (MOT, 2006A).

Transport is now the largest and fastest growing source of energy demand in New Zealand (MED, 2005b). New Zealand has a high rate of private vehicle ownership, a high proportion of travel using private vehicles, and high use of road transport, as opposed to train or air travel (MED, 2005c). At a national level, the main method of reducing energy consumption in the transport sector is through the use of economic instruments. Raising or lowering fuel taxes, and funding public transport initiatives seem to be the most common means of doing so (MoT, 2002). Transport has almost always been seen in terms of outputs (pollution) rather than inputs (energy). This is beginning to change as oil becomes scarcer and we must look for alternative fuels; however, pollution and congestion still seem to be the most dominant issues in transport policies to date.

There was very little national policy taking energy issues into account, before the New Zealand Transport Strategy of 2002. Transit NZ essentially managed roads and their funding. However, the NZTS has taken some time to develop, after a number of interruptions to the policy development process.

Regional Transport Policy

In the past, Environment Canterbury and many local councils took some responsibility for the energy aspects of public transport. Initiatives were primarily in public education (towards using public or 'sustainable' transport), and in supporting renewable energy initiatives where possible. Integration between the various tiers of government (central, regional and local), was identified as an important issue, but very limited progress was taken towards this (Bachels, 1995: p40). Air quality issues are tied in with transport and energy, and being a matter for regional authorities under the RMA and previously the Town and Country Planning Act, ECan has been very active in air quality issues since the mid 20th century.

National Building Regulations

The Building Act 1991 was introduced in the same year as the Resource Management Act, and set certain standards for insulation in residential households, through Section H of the Building Code. Section H1.2 of the Building Code states that

> *Buildings*, throughout their lives, shall have provision for ensuring efficient energy use in controlling indoor temperature when that energy is sourced from a public electricity supply, or any other depletable energy resource.

A number of performance standards are also listed within Section H.

The Building Act 1991 was replaced by the Building Act 2004, in which Section 3(d) states that one of the purposes of the Act is to ensure that 'buildings are designed, constructed, and able to be used in ways that promote sustainable development'. The regulations and Building Code are currently being reviewed and updated to comply with the updated Act (Department of Building and Housing, 2006).

Regional Building Initiatives

In the 1980s and earlier, national and regional campaigns to improve energy use, particularly residential energy use, were introduced. The issue arose out of the worsening air problems in urban areas, and public awareness of the implications of using solid fuels for home heating, was raised (J. Peet, 2006: pers. comm., 13 March).

Building is a land use issue, and therefore is a matter for TLAs. Building consents and inspections are carried out by the TLA building consents teams. The Christchurch City Council did, in the past, assist lower-income families with insulation of their houses. However, this task has now been passed over to ECan, who run the Clean Heat project (CCC, 2006). Aside from the energy issues involved, ECan have a particular interest in home heating because of the air pollution issues that solid fuel burners have caused. The focus of the Clean Heat project is on homes because 90% of air pollution in Christchurch is caused by domestic fires. The vast majority of energy consumption is in industrial processes, yet there has been very little focus on industry neither in the past nor at present (J. Peet, 2006: pers. comm., 13 March).